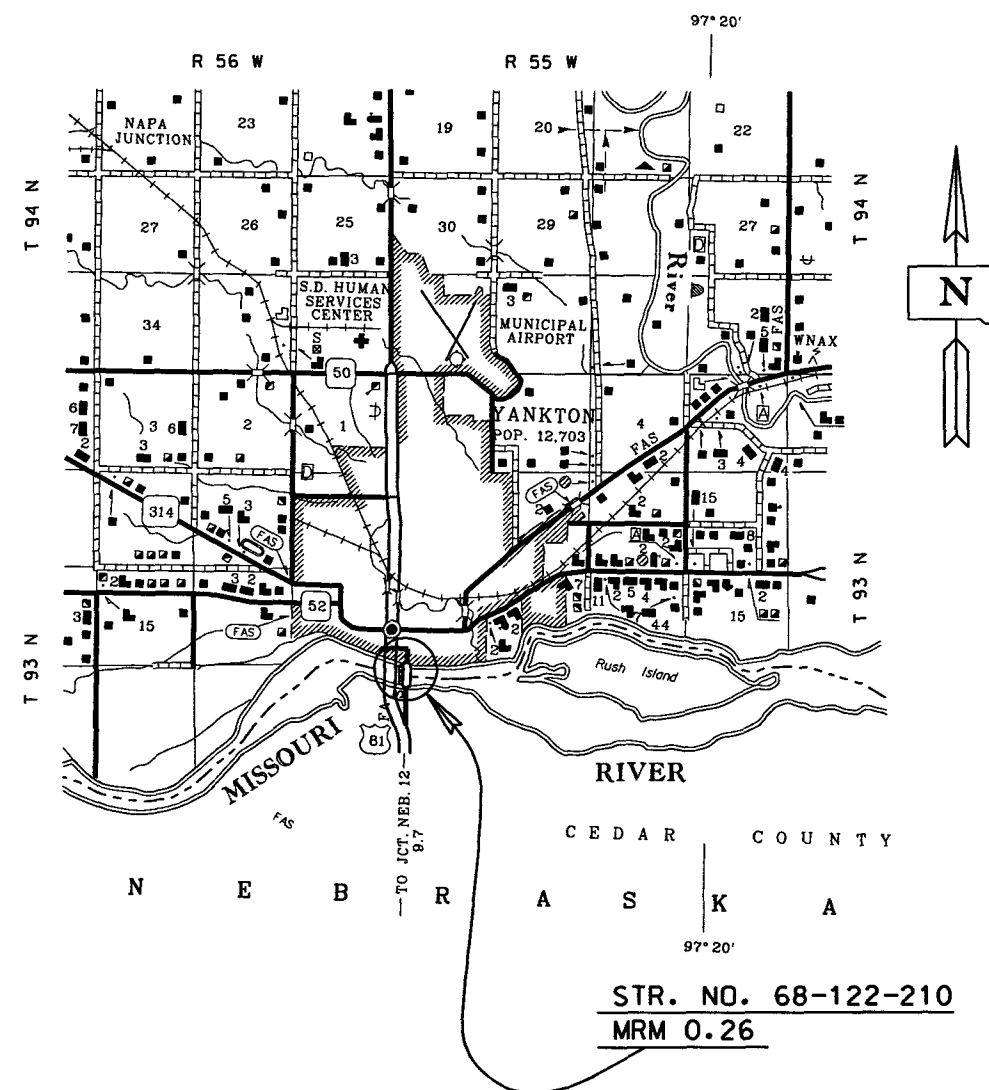
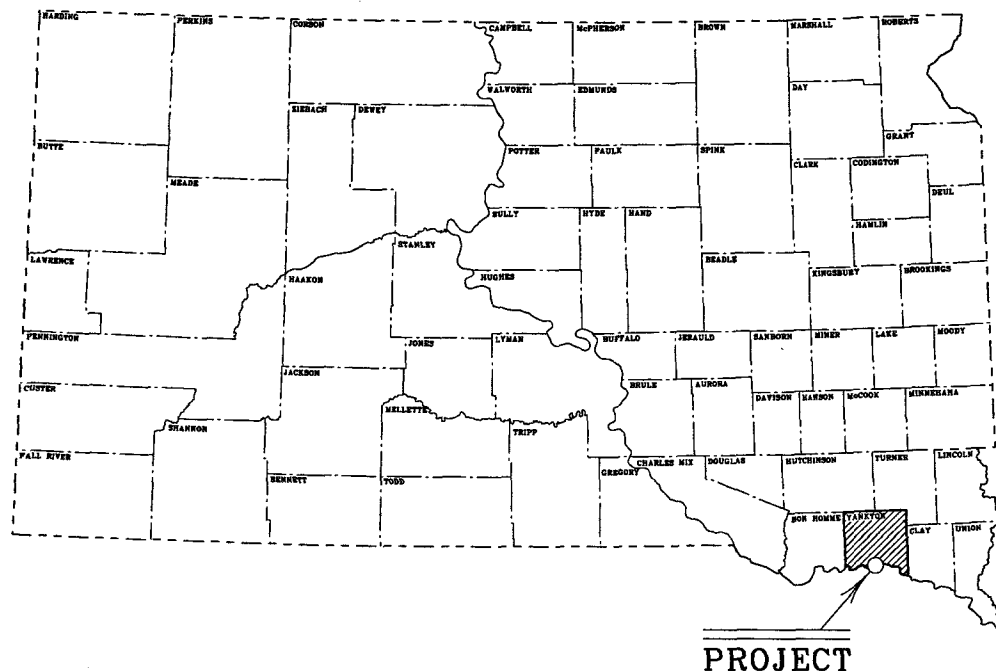


STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	ES 0081(63)0	1	54

INDEX OF SHEETS

- Sheet No. 1
Sheet Nos. 2 thru 10
Sheet Nos. 11 thru 43
Sheet Nos. 44 thru 54
- Title Sheet and Layout Map
- Estimate of Quantities and Plan Notes
- Details for Upgrading Str. No. 68-122-210
- Details for Lighting Str. No. 68-122-210

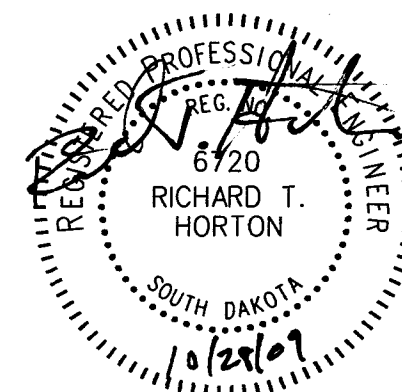
STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED
PROJECT ES 0081(63)0
U.S. HIGHWAY NO. 81
YANKTON COUNTY
BRIDGE REPAIR, PEDESTRIAN
CONVERSION & LIGHTING
PCN: 00KN



STATE AND NATIONAL LINE
COUNTY LINE
SECTION LINE

SCALE
LAYOUT: 1 INCH = 1 MILE

FOR BIDDING PURPOSES ONLY



6



1. Stationing Is measured along C Project.
- * 2. Measured along C North Bound Lane.
3. N.B.=Northbound Roadway (Upper Roadway)
4. S.B.=Southbound Roadway (Lower Roadway)
5. Pier and Span Numbering has been Changed from the Original Construction Drawings.
6. Elevation shown are based on NAVD 29.

**PROPOSED TYPICAL SECTION
THROUGH TRUSS SPANS**

**PROPOSED TYPICAL SECTION
THROUGH APPROACH SPANS**

TRUSS MARKING DIAGRAM

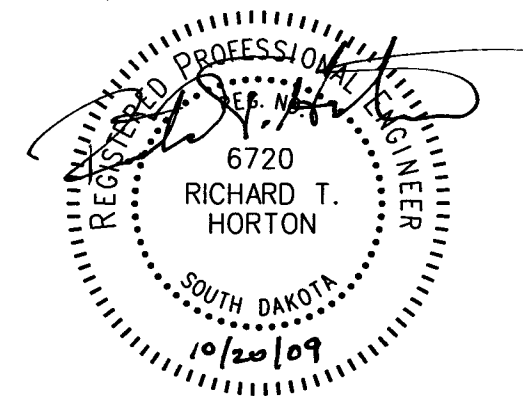
ELEVATION

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- Sheet No. 1 - Layout and General Drawing
- Sheet No. 2 - Estimate of Structure Quantities & Notes
- Sheet No. 3 - Notes
- Sheet No. 4 - Notes
- Sheet No. 5 - Notes
- Sheet No. 6 - Notes
- Sheet No. 7 - Notes
- Sheet No. 8 - Notes
- Sheet No. 9 - Notes
- Sheet No. 10 - Truss Floor Framing Plans
- Sheet No. 11 - Truss Floor Framing Plans
- Sheet No. 12 - Truss Floor Framing Plans
- Sheet No. 13 - Truss Floor Framing Plans
- Sheet No. 14 - Concrete Spall Repairs
- Sheet No. 15 - Cross Beam Repairs
- Sheet No. 16 - Lower Gusset Plate Joint Repair Details
- Sheet No. 17 - Lower Gusset Plate Joint Repair Details
- Sheet No. 18 - Lower Gusset Plate Joint Repair Details
- Sheet No. 19 - Lower Gusset Plate Joint Repair Details
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- Sheet No. 21 - Lower Gusset Plate Joint Repair Details
- Sheet No. 22 - Lower Gusset Plate Paint Details
- Sheet No. 23 - Lifting Frame For Bearing Replacement
- Sheet No. 24 - Lifting Frame For Bearing Replacement
- Sheet No. 25 - Pier Cap Repair and Jacking Pedestal Details
- Sheet No. 26 - Expansion Bearing Replacement Details
- Sheet No. 27 - Lower Lateral Bracing Details
- Sheet No. 28 - Lower Lateral Bracing Details
- Sheet No. 29 - Lower Lateral Bracing Details
- Sheet No. 30 - Upper Roadway Expansion Joint Removals
- Sheet No. 31 - Upper Roadway Expansion Joint Removals
- Sheet No. 32 - Upper Roadway Expansion Joint Details
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- Sheet No. 35 - Upper Roadway Expansion Joint Details
- Sheet No. 36 - Light Pole Base Details at Sta. 15+13
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- Sheet No. 50 - Lighting Details
- Sheet No. 51 - Lighting Details
- Sheet No. 52 - Lighting Details
- Sheet No. 53 - Lighting Details

KNOWN WORK ON THIS STRUCTURE -

- | | |
|--|------|
| Original Structure Built In | 1923 |
| Lower Deck Installed In | 1952 |
| South Approach Spans Replaced In | 1969 |
| Partial Repainting of Truss Spans In | 1971 |
| Balance of Approach Spans and Entire
Upper Deck Replaced In | 1978 |
| Counterweights Removed and Concrete Deck
Installed on Lower Deck of Span No. 2 In | 1983 |
| Bridge Repair of Pier T8, Expansion Joints
and Deck Beams | 1996 |
| Repair of Gusset Plates | 2008 |



LAYOUT AND GENERAL DRAWING
FOR

CONVERSION TO PEDESTRIAN BRIDGE OF
423'-6 $\frac{1}{2}$ " CONT. GIRDER SPANS+
1664'-0" DOUBLE DECK TRUSS SPANS+
795'-7 $\frac{3}{8}$ " CONT. GIRDER SPANS BRIDGE
14'-0" (S.B.) 17'-0" (N.B.) ROADWAY 0° SKEW
OVER THE MISSOURI RIVER SEC. 18-T93N-R55W
STR. NO. 68-122-210 EM0081(63)0

YANKTON COUNTY
S. D. DEPT. OF TRANSPORTATION

OCTOBER 2009

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HDX

DESIGNED BY ATN	DRAWN BY ACB	CHECKED BY RTH
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BRIDGE ENGINEER

	STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
	S.D.	EM 0081(63)0	3	54

ESTIMATE OF STRUCTURE QUANTITIES

BID ITEM NUMBER	DESCRIPTION	QUANTITY	UNIT	Remarks
009E0010	Mobilization	Lump Sum	LS	
110E5100	Salvage Luminaire Pole	36	Each	
250E0010	Incidental Work	Lump Sum	LS	
250E0030	Incidental Work, Structure	Lump Sum	LS	
410E0010	Structural Steel	47911	Lb	
410E0340	Repair Gusset Plate	18	Each	
410E0342	Repair Gusset Plate , End Post	12	Each	
410E0540	Jack Superstructure – Steel Truss Bridge	Lump Sum	LS	
410E0600	Dismantle Portions of Existing Structure	Lump Sum	LS	
410E1300	Expansion Pot Bearing	12	Each	
410E1510	Reset Rocker Bearing(s)	Lump Sum	LS	
410E2220	Replace Expansion Device	21	Each	
412E0120	Bridge Repainting, Class II	Lump Sum	LS	
412E0400	Rust Penetrating Sealer	Lump Sum	LS	
412E0500	Paint Residue Containment	Lump Sum	LS	
460E0070	Class A45 Concrete, Bridge Repair	5.9	CuYd	
460E0170	Concrete Patching Material	186.6	CuFt	
460E0300	Breakout Structural Concrete	0.4	CuYd	
460E0380	Install Dowel in Concrete	3552	Each	
470E0040	Steel Pedestrian Railing	3337.3	Ft	
470E0230	Steel Bicycle Railing on Concrete Barrier	6050.7	Ft	
480E0100	Reinforcing Steel	631	Lb	
491E0130	Concrete Removal, Type A	150.8	SqYd	
491E0140	Concrete Removal, Type B	15.1	SqYd	
621E0300	Chain Link Fence Fabric for Bridge Sidewalk	9388.0	Ft	
635E0900	Decorative Luminaire Pole	36	Each	
635E0902	Decorative Luminaire Pole with Twin Arms	1	Each	
635E0910	Decorative Luminaire Arm	16	Each	
635E3401	Decorative Luminaire, 175 Watt	16	Each	
635E3410	Decorative Luminaire, 400 Watt	38	Each	
635E5360	Surface Mounted Junction Box	9	Each	
635E8010	1" Rigid Galvanized Steel Conduit	1060	Ft	
635E8020	2" Rigid Galvanized Steel Conduit	170	Ft	
635E9002	1/C #00 AWG Copper Wire	7670	Ft	
635E9014	1/C #4 AWG Copper Wire	11635	Ft	
635E9020	1/C #10 AWG Copper Wire	4260	Ft	
635E9710	2/C #10 AWG Copper Pole and Bracket Cable	950	Ft	

SPECIFICATIONS FOR BRIDGE

- Design Specifications: AASHTO Standard Specifications for Highway Bridges, 17th Edition using Load Factor Design.
- AASHTO Guide Specifications for Design of Pedestrian Bridges.
- Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2004 Edition and Required Provisions, Supplemental Specifications and/or Special Provisions as included in the Proposal.

BRIDGE DESIGN LOADING

The design loading is a Pedestrian Loading. The Pedestrian Load is a uniform pressure of 65 psf over the entire Pedestrian Path clear width for Spans 1 through 5, 15, 16 and 18 through 26. The Pedestrian Loading is 65 psf over the entire Pedestrian Path clear width on both the upper and lower roadways for Spans 7 through 13. The Pedestrian Loading is 85 psf over the entire Pedestrian Path clear width for Spans 6, 14 and 17 as well as for the evaluation of the floor system of Spans 7 through 13. A design loading of a single H-10 vehicle, not in combination with the Pedestrian Loading, was also analyzed in all spans.

INCIDENTAL WORK, STRUCTURE

- All details and dimensions of the existing bridge, contained in these plans, are provided as information only. It is the Contractor's responsibility to inspect and verify the actual field conditions and any necessary dimensions affecting the project. Copies of the original construction plans and previous improvements are available from the Office of Bridge Design and will be provided to the Contractor, upon request.
- Material and equipment storage on the bridge deck is prohibited during construction. Equipment and work plan are the responsibility of the contractor and shall not compromise the stability nor overstress the existing structure.
- Use care when removing portions of the existing bridge members so as to not damage other remaining parts of the structure. Contractor shall replace, at no cost to SDDOT, all parts of the structure which are designated to remain if damaged.
- The Contractor shall provide fences, barricades, and security to keep pedestrians off the bridge and out of the work area.

NOTICE - LEAD BASED PAINT

Be advised that the paint on the steel surfaces of the existing structure is a paint containing lead. The Contractor should plan operations accordingly and inform his/her employees of the hazards of lead exposure.

SCOPE OF WORK

The work required for this project involves but is not limited to or necessarily in the sequence as follows:

- Install steel reinforcement plates for Cross Beam Repairs at the scheduled locations.
- Abrasive blast clean truss lower chord gusset locations and repair at the scheduled locations.
- Remove lower lateral bracing at scheduled locations. Clean locations and install replacement members as scheduled.
- Clean and paint steel reinforcement plate, truss lower chord gusset locations and repaired lower lateral bracing members mentioned in items 1, 2 and 3 above.
- Perform pier cap repairs as scheduled and construct jacking pedestals. Jack the trusses, replace the nested roller expansion bearings and reset the rocker bearings.
- Repair deck and barrier spalls as scheduled.
- Remove the existing expansion devices at the scheduled locations. Breakout deck and barrier curb concrete to the limits shown. Clean and paint the specified structure steel below the expansion joints. Install new expansion devices, reinforcing steel and place deck and barrier curb concrete.
- Install pedestrian fence on top of the barrier on the upper roadway and mounted on the deck of the lower deck roadway.
- Remove existing lighting and install barrier mounted lighting on the upper deck roadway, structure mounted lighting on the lower deck roadway, and pole mounted lighting.

FOR BIDDING PURPOSES ONLY

ESTIMATE OF STRUCTURE QUANTITIES & NOTES

FOR
CONVERSION TO PEDESTRIAN BRIDGE OF
423'-6½" CONT. GIRDER SPANS+

1664'-0" DOUBLE DECK TRUSS SPANS+
795'-7¾" CONT. GIRDER SPANS BRIDGE

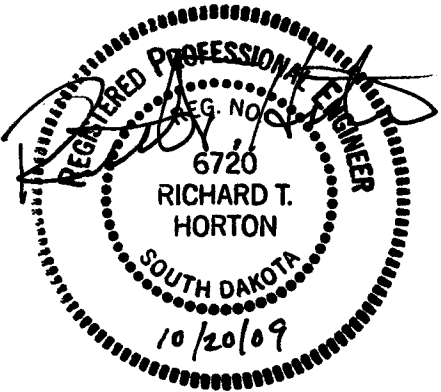
-X932- N.B.) ROADWAY 0° SKEW
OVER THE MISSOURI RIVER SEC. 18-T93N-R55W
STR. NO. 68-122-210 EM0081(63)0

YANKTON COUNTY
S. D. DEPARTMENT OF TRANSPORTATION
OCTOBER 2009

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DESIGNED BY:	DRAWN BY:	CHECKED BY:	APPROVED:
ATN	ATN	RTH	
BRIDGE ENGINEER			



FOR BIDDING PURPOSES ONLY

	STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
	S.D.	EM 0081(63)0	4	54

DESIGN MATERIAL STRENGTHS

Class A45 Concrete $f_c = 4,500$ psi
Structural Steel (ASTM A709 Gr. 50T2) $f_y = 50,000$ psi

WASTE DISPOSAL SITE

The Contractor will be required to furnish a site(s) for the disposal of construction/demolition debris generated by this project.

Construction/demolition debris may not be disposed of within the State ROW.

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the General Permit for Highway, Road and Railway Construction/Demolition Debris Disposal under the South Dakota Waste Management Program issued by the Department of Environment and Natural Resources.

The waste disposal site(s) shall not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements shall apply:

- Construction/demolition debris consisting of concrete, asphalt concrete or other similar materials shall be buried in a trench completely separate from wood debris. The final cover over the construction/demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the State ROW shall be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The contractor shall control the access to waste disposal sites not within the State ROW through the use of fences, gates and placement of a sign or signs at the entrance to the site stating "No Dumping Allowed".
- Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period of time not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13 and ARSD 74:27:10:06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fences, gates and signs) and reclamation of the waste disposal site(s) shall be incidental to the various contract items.

GENERAL CONSTRUCTION - BRIDGE

- All reinforcing steel shall conform to ASTM A615, Grade 60.
- All exposed concrete corners and edges shall be chamfered $\frac{3}{4}$ " unless noted otherwise. Where new chamfer will be extending an existing chamfer, the chamfer shall match the existing chamfer.
- Use 2" clear cover on all reinforcing steel except as shown.

CLASS A45 CONCRETE, BRIDGE REPAIR

- All structural concrete shall be Class A45.
- Type II cement conforming to section 750 is required.
- Coarse Aggregate for Class A45 Concrete shall consist of either crushed quartzite or other crushed ledge rock. If crushed ledge rock other than quartzite is to be used, it shall be from a source approved by the Engineer.
- Grout design mix shall be as specified in the South Dakota Standard Specifications Section 460.3.S. A compressive strength of 2000 psi shall be attained by the grout prior to placing the bearings. Payment for purchasing, preparing and install the grout shall be incidental to the contract unit price per cubic yard for Class A45 Concrete, Bridge Repair.
- Concrete to be used in bridge deck, barriers, pier cap repairs and the jacking pedestals shall be in accordance with the requirements for bridge deck concrete as specified in Section 460.3A of the South Dakota Standard Specifications.

STRUCTURAL STEEL

- All new shop fabricated structural steel shall be painted in accordance with Section 411 of the South Dakota Standard Specifications.
- All new structural steel fabricated in the field or existing steel shall be painted in accordance with Section 412, Class II of the South Dakota Standard Specifications. Faying surfaces shall be abrasive blast cleaned and receive a prime coat only. Field painting shall be paid for at the contract price lump sum for Bridge Repainting, Class II.
- Structural Steel shall be paid for at the contract unit price bid per pound for Structural Steel. This price shall be full compensation inclusive of labor for all structural steel, bolts, preparation of base metal prior to welding, field welding, shop painting and all material, labor, tools and equipment necessary or incidental to the performance of this work.
- All new structural steel shall conform to ASTM A709, Grade 50T2.
- All new bolts shall conform to the requirements of ASTM A325. Each bolt shall be supplied with a heavy hex nut and 1 washer.
- Bolts shall be $\frac{7}{8}$ " diameter unless noted.
- Structural Steel used in the repair of the Truss Lower Chord Joints shall comply with the Charpy-V-Notch toughness requirements set forth in Section 971 of the South Dakota Construction Specifications.
- The existing ladder on the lift tower leg shall be removed to the extent detailed on Sheet No. 41 of 53. Removal and disposal shall be included in the bid price for Dismantle Portions of Existing Structure.
- The threaded anchor bolts and nuts for light pole base attachment at Sta. 15+13 shall conform to ASTM A307. Washers shall conform to ASTM F436 and all components shall be galvanized in accordance with ASTM A153 or ASTM F2329, as applicable. The bolts shall be hex head "structural" type with heavy hex nuts and round washers. The cost of the anchor bolts, nuts and washers shall be incidental to the contract unit price each for Decorative Luminaire Pole.

UTILITIES

It shall be the Contractor's responsibility to contact all necessary utility companies for location of underground utilities prior to beginning the work. Power to the existing lighting located on the structure may be disconnected during construction.

BREAKOUT STRUCTURAL CONCRETE

- This work shall consist of breakout and disposal of portions of the abutments, deck and barrier curb concrete at the expansion joint devices. The limits of the breakout shall be as shown in these plans and shall be defined by a saw cut of the depth indicated where practical.
- When breaking out existing structural concrete, care must be taken so as not to damage existing reinforcing steel that is exposed and is to be reused in the new construction. Any reinforcing steel that is to be reused in the new construction shall be cleaned and straightened to the satisfaction of the Engineer and any of this steel damaged during concrete breakout shall be repaired or replaced by the Contractor, as approved by the Engineer, at no cost to the State.
- The cost of all concrete breakout including saw-cuts, breaking out concrete, removal of existing expansion joint assemblies, straightening and cleaning existing reinforcing steel and disposal of all broken out material shall be incidental to the contract unit price per cubic yard for Breakout Structural Concrete.



NOTES (Continued)
FOR
CONVERSION TO PEDESTRIAN BRIDGE OF
423'-6 $\frac{1}{2}$ " CONT. GIRDER SPANS+
1664'-0" DOUBLE DECK TRUSS SPANS+
795'-7 $\frac{3}{8}$ " CONT. GIRDER SPANS BRIDGE
14'-0" (S.B.) 17'-0" (N.B.) ROADWAY 0° SKEW
OVER THE MISSOURI RIVER SEC. 18-T93N-R55W
STR. NO. 68-122-210 EM0081(63)0

YANKTON COUNTY
S. D. DEPARTMENT OF TRANSPORTATION
OCTOBER 2009

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DESIGNED BY: ATN	DRAWN BY: ATN	CHECKED BY: RTH	APPROVED: BRIDGE ENGINEER
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FOR BIDDING PURPOSES ONLY

	STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
	S.D.	EM 0081(63)0	5	54

REMOVAL OF EXISTING RIVETS

- Existing rivets may be removed by one of the following methods, unless noted otherwise:
 - Drilling.
 - By using a pneumatic breaker (Helldog) to remove the rivet head and a pneumatic punch to drive out the shank.
 - By using a rivet scarfing tip to flame-cut the rivet head to $\frac{1}{16}$ inch above the base metal and a pneumatic punch to drive out the shank.
- If, in the opinion of the Engineer, rivet shanks cannot be removed by punching without damaging the base metal, remove the rivet shank by drilling.
- All existing rivets are $\frac{7}{8}$ " diameter unless noted otherwise.
- All holes of removed fasteners, not reused in the structure alterations, shall be filled with a high strength bolt of the same diameter, with washers, unless noted otherwise in the plans
- Costs for removal of existing rivets shall be incidental to the contract unit price per pound for Structural Steel.

BRIDGE DECK AND BARRIER SPALL REPAIR

- The deficient concrete in the spalled areas that are located on the bridge deck and barrier rail as noted on Sheet No. 14 of 53 shall be removed and repaired. The limits of the area of the deficient concrete shall be verified in the field by the Engineer prior to repair.
- Extreme care shall be taken not to damage reinforcing steel to remain during removal. If any reinforcing steel is inadvertently damaged, the Contractor shall repair or replace the damaged reinforcing steel at no cost to the Department.
- After removal of the concrete in the spalled areas, abrasive blasting of these areas is required such that all surface laitance is removed from the new substrate surface and that all rust and old concrete is removed from any exposed reinforcing steel. Abrasive blasting shall be performed no more than 24 hours prior to concrete placement. If the 24 hour limitation is exceeded, the area shall be abrasive blasted again.
- Concrete patching material shall be packaged, dry, rapid-hardening cementitious mortar or concrete materials conforming to the requirements of ASTM C 928, Type R-3 and shall contain no chloride ions. Concrete patching material shall be installed per the manufacture's recommendations.
- All cost for saw cutting, concrete removal, abrasive blasting, and all other items incidental to preparing the spall areas for replacement of concrete to a depth defined by the top of the reinforcing steel shall be incidental to the contract unit price per square yard for Concrete Removal, Type A.
- All cost for concrete removal, abrasive blasting, and all other items incidental to preparing the spall areas for replacement of concrete to a depth defined by the top of the reinforcing steel as an upper boundary and extending to sound concrete shall be incidental to the contract unit price per square yard for Concrete Removal, Type B.
- The concrete used to repair the spall areas, which includes furnishing, placing, finishing, curing and all other items incidental to completing this work, shall be paid for at the contract unit price per cubic foot for Concrete Patching Material.

SHOP DRAWINGS - STRUCTURAL

The fabricator shall initially send one copy of the shop drawings for review to SDDOT Office of Bridge Design, and three copies of the shop plans to:

HDR Engineering, Inc.
C/O Richard T. Horton, P.E.
8404 Indian Hills Drive
Omaha, NE 68114

The consultant shall make any changes to the shop drawings, if necessary, and forward two corrected sets stamped "REVIEWED BY ..." to the SDDOT Office of Bridge Design. The Office of Bridge Design will then review the shop drawings and forward one corrected set to the Fabricator. The Fabricator shall make any changes, if necessary, and forward seven corrected copies to the SDDOT Office of Bridge Design for final approval and fabrication authorization.

WELDING AND WELD INSPECTION

- Welding and Weld Inspection shall be done in accordance with the current edition of AWS D1.1 Structural Welding Code-Steel.
- Plan shown field welding shall be in accordance with the current version of the ANSI/AWS D1.1 Structural Welding Code.

BOLT TESTING

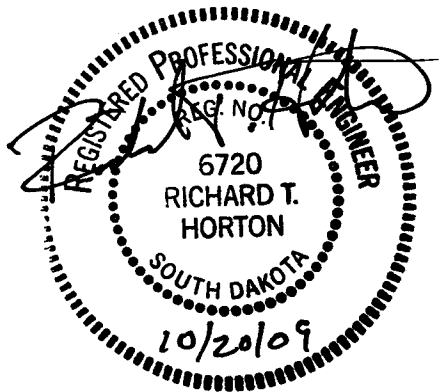
The certified mill test reports for all bolts used on the project shall include the test results for all of the testing specified in Section 972.2.D of the Construction Specifications. Some of these tests are supplemental test that must be requested at the time the bolts are ordered. It is the responsibility of the Contractor to notify the bolt supplier of these requirements.

CONCRETE PIER CAP REPAIR NOTES

- All unsound and deteriorated pier cap concrete between the truss bearings shall be removed to the extent approved by the Engineer. Removal of the unsound concrete shall be performed using hand tools only.
- Locations of the concrete pier cap repair are shown on Sheet No. 25 of 53. Areas will be measured and paid for at the contract unit price per Cubic Yard for Class A45 Concrete, Bridge Repair. This payment shall be full compensation for all materials, labor, tools and equipment necessary or incidental to Pier Cap Repair including the removal and disposal of loose concrete in the areas of repair.
- The edges around the unsound area to be removed shall be saw cut to a depth of $1\frac{1}{2}$ " in sound concrete.
- Class A45 concrete shall be used to replace the concrete that has been removed up to the original top of cap elevation.
- If unsound pier cap concrete exists within the area of the jacking pedestal, the unsound concrete shall be removed as noted above. Prior to filling this area with concrete, the holes for the concrete jacking pedestal reinforcing shall be drilled into sound concrete and reinforcing placed and grouted prior to placement of the Class A45 concrete.

INSTALLING DOWELS IN CONCRETE

- The epoxy resin mixture shall be of type for bonding steel to hardened concrete and shall conform to AASHTO M235 (ASTM C 881) Type IV, Grade 3.
- The diameter of the drilled holes shall not be less than $\frac{1}{8}$ " greater, nor more than $\frac{3}{8}$ " greater, than the diameter of the dowels or as per manufacturer's recommendations. Use compressed air or other techniques to ensure that the hole is free of any loose material before epoxy resin is applied.
- Mix epoxy resin as recommended by the manufacturer and apply by an injection method as approved by the Engineer. Fill the holes $\frac{1}{3}$ to $\frac{1}{2}$ full of epoxy, or as recommended by the manufacturer, prior to insertion of the steel bar. Rotate the steel bar during installation to eliminate voids and ensure complete bonding of the bar. Insertion of the bar by the dipping method will not be allowed.
- The cost of the epoxy resin, installation and other incidental items shall be paid for at the contract unit price each for Install Dowel In Concrete.



NOTES (Continued)
FOR

CONVERSION TO PEDESTRIAN BRIDGE OF
423'-6 $\frac{1}{2}$ " CONT. GIRDER SPANS+
1664'-0" DOUBLE DECK TRUSS SPANS+
795'-7 $\frac{3}{8}$ " CONT. GIRDER SPANS BRIDGE
14'-0" (S.B.) 17'-0" (N.B.) ROADWAY 0° SKEW
OVER THE MISSOURI RIVER SEC. 18-T93N-R55W
STR. NO. 68-122-210 EM0081(63)0

YANKTON COUNTY
S. D. DEPARTMENT OF TRANSPORTATION
October 2009

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DESIGNED BY:	DRAWN BY:	CHECKED BY:	APPROVED:
ATN	ATN	RTH	
BRIDGE ENGINEER			

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	EM 0081(63)0	6	54

GUSSET PLATE REPAIR

1. Payment for Gusset Plate Repair shall include full compensation for furnishing all the required materials in place, inclusive of labor, necessary shoring, drilling, walkway support removal, equipment and incidentals necessary to complete the work in accordance with the plans and specifications. Payment shall be included in the contract unit price per each for Repair Gusset Plate.
2. Payment for Gusset Plate Repair, End Post shall include full compensation for furnishing all the required materials in place, inclusive of labor, necessary shoring, drilling, walkway support removal, equipment and incidentals necessary to complete the work in accordance with the plans and specifications. Payment shall be included in the contract unit price per each for Repair Gusset Plate, End Post.
3. In Span 7, there are existing steel members that were formerly the support frame of a walkway on the east side of the truss. Portions of these walkway supports may be removed to facilitate the repair of the gusset plates. Replacement of the walkway supports is not required.

BEARING REPLACEMENT AND RESETTING

1. Contractor shall field verify all dimensions. Contractor shall note tight tolerance of bearing guide bars and plan bearing replacement and resetting accordingly.
2. No bridge jacking is to be performed until:
 - a. The pier to be jacked from has been inspected, prepared according to the "Pier Repair Details" and approved by the Engineer.
 - b. All Lower Chord Gusset Repairs have been completed within the truss span to be jacked.
 - c. All Lower Lateral Bracing Repairs have been completed within the truss span to be jacked.
3. Contractor shall field measure the relative longitudinal distance from centerline of the bearing pin to the centerline of the bearing pedestal and note the current temperature. Distances greater than 2" shall be reported to the Office of Bridge Design. If movements greater than 2" are reported, bearing detailing and fabrication shall not commence until approval from the Engineer is given.
4. The bearing assembly above the nested rollers is to remain. The base of the existing bearing shoe is to be smooth and free of dirt, debris and corrosion prior to attaching the sole plate of the pot bearing assembly.
5. Upon removal of the existing bearing assembly, the existing grout pad shall be inspected and repaired, if needed, to provide a smooth, level grout surface.
6. Apply penetrating oil to the bearing pins in advance of jacking operations to facilitate reposition of the bearing rockers upon jacking of the truss.
7. For the rocker bearing resetting, jack the superstructure per the jacking notes to obtain separation between the bearing rocker assembly and the bearing base plate. Rotate the bearing rocker assembly to a plumb orientation at 50° Fahrenheit and adjust rocker orientation 3/16" for each 10° Fahrenheit temperature variation. Rotate bearing rocker from plumb position at 50° Fahrenheit toward centerline pier for a decrease in temperature and away from centerline pier for an increase in temperature.

BEARING REPLACEMENT AND RESETTING (Continued)

8. Payment for Superstructure Jacking shall include full compensation for furnishing all the required materials including the jacking frame, jacks and bracing, in place, inclusive of labor, equipment and incidentals necessary to complete the work in accordance with the plans and specifications. Payment shall be included in the contract unit price Lump Sum for Jack Superstructure – Steel Truss Bridge.
9. Payment for Rocker Bearing Resetting shall include full compensation for furnishing all the required materials in place, inclusive of labor, equipment and incidentals necessary to complete the work in accordance with the plans and specifications. Payment shall be included in the contract unit price Lump Sum for Reset Rocker Bearing(s).

LATERAL BRACING REPAIR

Payment for Lateral Bracing Replacement shall include full compensation for furnishing all the required materials in place, inclusive of labor, necessary shoring, removal of the existing lateral bracing as required, equipment and incidentals necessary to complete the work in accordance with the plans and specifications. Payment for the Lateral Bracing Replacement shall be at the contract unit price per pound for Structural Steel.

STEEL RAILING

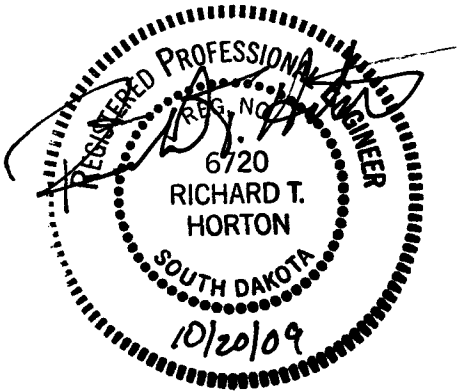
1. All chain link fence posts shall be built vertical.
2. All structural steel parts for railing parts shall conform to ASTM A500, Grade B. Material less than ¼" thick may be ASTM A1011, Grade 36 and rail post base plates may be ASTM A709, Grade 36.
3. All anchor bolts and nuts for railing shall conform to ASTM A307. Washers shall conform to ASTM F436 and all components shall be galvanized in accordance with ASTM A153 or ASTM F2329, as applicable. The bolts shall be hex head "structural" type with heavy hex nuts and round washers.
4. All anchor bolts shall be tightened to a torque of 120 foot-pounds. (Approximated without the use of a calibrated torque wrench.)
5. The non-shrink grout used to level the area beneath the rail post base plates shall be a commercially available non-shrink grout containing no metallic particles and capable of attaining a 28 day compressive strength of 3000 psi. The non-shrink grout shall be mixed according to the manufacturer's recommendations. The cost of furnishing and placing the non-shrink grout shall be incidental to the contract unit price per foot for Steel Pedestrian Railing and Steel Bicycle Railing on Concrete Barrier.
6. All steel railing shall be painted in accordance with Section 411 of the South Dakota Standard Specifications and the color shall be an approved green (Federal Standard 595B Color 24108)
7. The cost of the structural steel, welding, weld inspection, painting, and galvanizing shall be incidental to the contract unit price per foot for Steel Pedestrian Railing and Steel Bicycle Railing on Concrete Barrier.

CHAIN LINK FENCE

1. The chain link fence fabric and supports shall conform to Section 930 of the South Dakota Standard Specifications as modified by the following notes.
2. The chain link fence fabric, wire ties and miscellaneous hardware shall be galvanized and conform to AASHTO M181. The fence fabric shall be Type IV 9 gauge wire woven in a 2" diamond mesh. Knuckled selvage shall be used on the top and bottom of the fence fabric.
3. A green (Federal Standard 595B Color 24108) thermally extruded polyvinyl coating shall be applied to the fence fabric, wire ties, and all miscellaneous hardware.
4. The item Chain Link Fence Fabric for Bridge Sidewalk shall be paid for by the linear foot. This payment shall be full compensation for furnishing all material, labor, tools and equipment necessary or incidental to the construction of the chain link fence including chain link fence fabric, wire ties, painting, welding, and miscellaneous hardware, all to satisfactorily complete this work.

USGS GAGING STATION

A USGS gaging station is located on this structure with a gage house on the north approach of the lower deck. The contractor shall coordinate with USGS on their work around the gaging apparatus and gage house. A minimum two week notice shall be given to the USGS prior to any work involving the stream gaging apparatus or gaging station. Contact U.S. Geological Survey, Huron Field Office, 111 Kansas Ave SE, Huron, SD 57350; Mike Burr, Phone 605-352-4241, Ext 231



NOTES (Continued)
FOR
CONVERSION TO PEDESTRIAN BRIDGE OF
423'-6½" CONT. GIRDER SPANS+
1664'-0" DOUBLE DECK TRUSS SPANS+
795'-7¾" CONT. GIRDER SPANS BRIDGE
14'-0" (S.B.) 17'-0" (N.B.) ROADWAY 0° SKEW
OVER THE MISSOURI RIVER SEC. 18-T93N-R55W
STR. NO. 68-122-210 EM0081(63)0

YANKTON COUNTY
S. D. DEPARTMENT OF TRANSPORTATION
October 2009

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DESIGNED BY:	DRAWN BY:	CHECKED BY:	APPROVED:
ATN	ATN	RTH	
BRIDGE ENGINEER			

FOR BIDDING PURPOSES ONLY

	STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
	S.D.	EM 0081(63)0	7	54

PAINT RESIDUE REMOVAL AND CONTAINMENT

- Paint Residue Removal and Containment shall be performed in accordance with Section 412 of the Construction Specifications, Bridge Repainting Class II except as modified by these notes.
- This segment of the Missouri River is classified as a warm water permanent fishery. The total suspended solids standard is 90 mg/l and the lead standard is 158 mg/L (total lead). These standards cannot be violated at any time. Therefore, it is important that the Contractor plan his operations to prevent a spill of paint residue into the waterway. The Contractor shall be responsible for any damage mitigation should such a spill occur. The Contractor shall have the materials and personnel available to comply with the following:
 - Satisfactory sampling bottles, personnel, and other apparatus to enable the Contractor to collect water samples at the spill site. The Contractor's personnel and equipment shall be such that samples are able to be collected 6 inches below the water surface at a location 25 to 50 yards downstream from the spill site over a sufficient area that assumes some lateral distribution of the spilled residue. These samples are to be collected as soon as possible after a spill.
 - The Contractor can obtain additional information on water sampling requirements by contacting the Water Quality Program, DENR, Phone (605) 773-3296.
 - If a spill should occur, the Contractor shall immediately notify the Engineer and the DENR Water Quality Program at (605) 773-3296 and shall send the collected water samples to them if requested. If water samples are requested by the DENR Water Quality Program, the Engineer shall be notified and be a witness to the sample collection and transmittal of samples to the DENR.
- The Contractor shall haul and unload the 55 gallon containment drums with paint residue, blasting media, etc. to the SDDOT Yankton Maintenance Yard located west of Yankton on Highway 50 for temporary storage. All costs associated with this work shall be included in the contract lump sum price for "Paint Residue Containment".

APPLICATION OF RUST PENETRATING SEALER TO PACK RUST AREAS

- Pack rust areas within the areas defined for painting in the Bridge Repainting Class II notes shall be treated with a rust penetrating sealer. The rust penetrating sealer shall be applied after the area has been cleaned and prepared for painting as specified in the Bridge Repainting, Class II notes but prior to the application of the final paint system. Pack rust areas are those defined as joints in connecting plates and/or crevice areas.
- Remove all loose pack rust from the joint or crevice areas and remove as much pack rust as practical to a level below the steel members between which the rust is packed. Pack rust removal may be accomplished by hand tools, abrasive blasting, or high pressure water blasting. No use of cutting torches, grinders or any other cutting techniques may be used to remove the pack rust.
- Strip coat (brush apply) the rust penetrating sealer in the pack rust areas. Do not apply the remainder of the Nepcoat paint system until the area has cured for the amount of time specified by the manufacturer of the rust penetrating sealer.

APPLICATION OF RUST PENETRATING SEALER TO PACK RUST AREAS
(Continued)

- The rust penetrating sealer shall be supplied as one of the following:

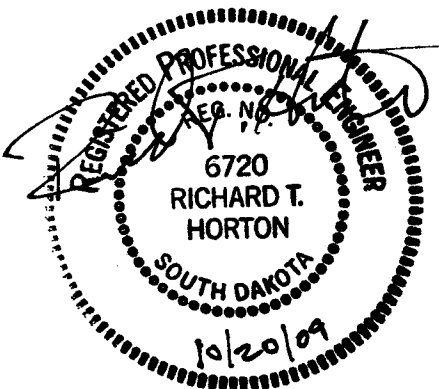
- Pre-Prime 167
Penetrating Sealer
Catalog No. 167K0000
ICI Devoe Coatings Company
Cleveland, Ohio
Telephone: 800-654-2616
Website: www.icidevoecoatings.com
- Wasser MC-PrepBond 2.8
Wasser Corporation
4118 B Place NW Suite B
Auburn, WA 98001
Telephone: 800-627-2968
Website: www.wassercoatings.com
- Time-Lock MoPoxY PRE-PREP
Rust Penetrating Sealer 41-AF-2
BLP Mobile Paints
P.O. Box 717
Theodore, Alabama 36590-0717
Telephone: 251-443-6110
Website: www.blpmobilepaint.com
- Rust Bullet Standard Formula
Rust Bullet, LLC
300 Brinkby Avenue, Suite 200
Reno, NV 89509
Telephone: 800-245-1600
Website: www.rustbullet.com

The rust penetrating sealer shall be applied in accordance with the recommendations of the manufacturer and approved by the Engineer.

- For informational purposes, 12,000 square feet of structural steel will require rust penetrating sealer.
- The cost of furnishing and applying the rust penetrating sealer and all other items incidental to the application of this sealer shall be included in the contract lump sum price for "Rust Penetrating Sealer".

BRIDGE REPAINTING, CLASS II

- Portions of the existing truss, girders, stringers and floor beams shall be painted as shown by these plans and in accordance with the requirements for Bridge Repainting, Class II in Section 412 of the Construction Specifications except as modified by these notes.
- The entire surface to be painted shall be cleaned to a condition equivalent to the SSPC-SP10 in lieu of the cleaning level specified in Section 412 of the Construction Specifications.
- After blast cleaning the surfaces to be painted, remove any trace of blast products, dust or dirt from all surfaces including pockets and corners as approved by the Engineer.
- The paint system shall meet the requirements of the NEPCOAT Qualified Products List B. The color of the top coat shall match the existing paint color. The Contractor shall obtain a paint chip sample from the structure and submit the structure sample and a paint chip from the paint supplier to the Office of Bridge Design for approval. The prime coat and the top coat shall sharply contrast.
- Should there be a conflict between the requirements of Section 412 and those of the paint system manufacturer, the more stringent requirement, as determined by the Engineer, shall apply.
- For informational purposes, 48,000 square feet of structural steel will require painting.



NOTES (Continued)
FOR
CONVERSION TO PEDESTRIAN BRIDGE OF
423'-6½" CONT. GIRDER SPANS+
1664'-0" DOUBLE DECK TRUSS SPANS+
795'-7¾" CONT. GIRDER SPANS BRIDGE
14'-0" (S.B.) 17'-0" (N.B.) ROADWAY 0° SKEW
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STR. NO. 68-122-210 EM0081(63)0

YANKTON COUNTY
S. D. DEPARTMENT OF TRANSPORTATION
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DESIGNED BY:	DRAWN BY:	CHECKED BY:	APPROVED:
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BRIDGE ENGINEER			

BOLT TIGHTENING

The Turn-Of-Nut Method for bolt tightening shall be used. See Sheet Nos. 17 and 19 of 53 for modifications to the Turn-Of-Nut Method for gusset plate connections.

TURN-OF-NUT METHOD

1. Use the turn-of-nut method to provide the minimum bolt tension specified in the "Minimum Bolt Tension" Table.
2. Install bolts in all holes of the connection and bring to a "snug tight" condition. Consider bolts to be "snug tight" when tensioned to approximately 20% of the bolt minimum bolt tension listed above and faying surfaces are in full contact. If full contact of faying surfaces is not achieved after all bolts have been tensioned to 20% of minimum tension, submit a corrective procedure to the Engineer for approval.
3. Systematically progress with snug tightening starting at the center of the connection and working out to the free edges. Check the fasteners of the connection in a similar systematic manner. Retighten as necessary until all fasteners are simultaneously in a "snug tight" condition and the faying surfaces are in full and continuous contact.
4. When all fasteners in the connection are "snug tight", match-mark the face of the connecting part, the nut, and the bolt point using paint, crayon, or other approved means to provide a reference for determining the relative rotation of the parts during final tightening.
5. Following this operation, tighten all fasteners in the connection further by the applicable amount of rotation specified in the "Nut Rotation from "Snug Tight" Conditions" Table. Systematically progress with tightening starting at the center of the joint and working out to the free edges. During this operation, do not rotate the part without using the wrench.

INSPECTION

1. Check bolted connections, after tightening, in the presence of the Engineer for proper installation, applicable rotation, and general joint condition. The inspection of fasteners, with a torque wrench, at connections of steel diaphragms to concrete beams will not be required.
2. Furnish and use an inspecting wrench which is calibrated and capable of measuring torque.
3. To calibrate the inspecting wrench:
 - a. Select a representative sample of no less than three bolts and nuts of each diameter, length, grade, and turned element, to be tensioned that day.
 - b. Check the samples prior to inspection in a device capable of indicating bolt tension. Turn the same element during testing that will be turned during actual work.
 - c. Use the inspecting wrench to tension the bolt and determine the torque necessary to achieve a bolt tension 5% greater than the specified minimum bolt tension.
 - d. Use the average of the three torque values for the job inspecting torque value(s).

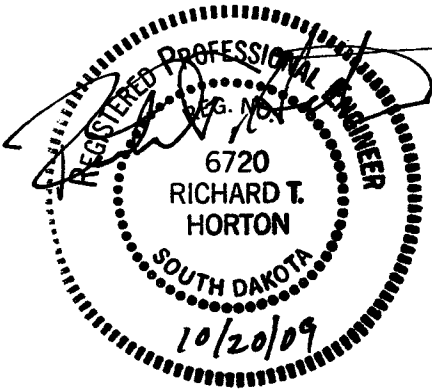
INSPECTION (Continued)

4. Establish the job inspecting torque value(s) at least once prior to each day's inspection. Have an approved testing agency calibrate the tension measuring device at least every 6 months.
5. Inspect installed and tightened fasteners, represented by the above tests, for acceptance by attempting to tighten the fastener using the inspection torque wrench and the predetermined inspection torque value(s). Acceptance will be based on the random checking of at least 10% of the fasteners in each connection. A minimum of two fasteners per connection will be checked. The connection will be accepted as properly tightened if:
 - a. The faying surfaces are in full and continuous contact, and
 - b. No bolt or nut is turned at a torque value less than or equal to the inspection torque value(s).
6. If any bolt or nut is turned at torque values below the inspection torque values below the inspection torque value(s), check all fastener in that connection. Tighten and reinspect all bolts or nuts which turn below inspection torque values.
7. Bolts tightened by the turn-of-nut method may reach tensions substantially above the values specified, but this is not cause for rejection.

REUSE OF BOLTS

1. Do not reuse high strength bolts and nuts. Do not incorporate construction bolts or fit-up bolts into the final connection.
2. Tensioning of fasteners up to a snug-tight condition as previously described, will not be considered as reuse.
3. Retightening (touching up) previously tightened bolts which may have been loosened by the tightening of adjacent bolts will not be considered as reuse.

FOR BIDDING PURPOSES ONLY



Minimum Bolt Tension

Bolt Dia. Inches (mm)	Min. Bolt Tension, Lb ^(a) (kN ^(a))	Bolt Dia. Inches (mm)	Min. Bolt Tension, Lb ^(a) (kN ^(a))
1/2 (12.7)	12,050 (53.6)	1 1/8 (28.6)	56,450 (251.1)
5/8 (15.9)	19,200 (85.4)	1 1/4 (31.8)	71,700 (318.9)
3/4 (19.0)	28,400 (126.3)	1 3/8 (34.9)	85,450 (380.1)
7/8 (22.2)	39,250 (174.6)	1 1/2 (38.1)	104,000 (462.6)
1 (25.4)	51,500 (229.1)		

^(a) Equal to the proof load (length measurement method) given in ASTM A 325.

Nut Rotation from "Snug Tight" Conditions^(a)
(Disposition of Outer Faces of Bolted Connections)

Bolt Length (Under side of head to end of bolt)	Both faces normal to bolt axis	One face normal to bolt axis and other slope not more than 1:20 (beveled washer not used)	Both faces sloped not more than 1:20 from normal to the bolt axis (beveled washers not used)
Up to and including 4 diameters	1/3 turn	1/2 turn	2/3 turn
Over 4 diameters but not exceeding 8 diameters	1/2 turn	2/3 turn	5/6 turn
Over 8 diameters but not exceeding 12 diameters	2/3 turn	5/6 turn	1 turn

^(a) Nut rotation is relative to the bolt, regardless of the element (nut or bolt) being turned. For bolts installed using 1/2 turn and less, use a tolerance of ± 30 degrees. For bolts installed using 2/3 turn and more, use a tolerance of ± 45 degrees.

^(b) For bolt lengths exceeding 12 diameters, the required rotation must be determined by actual field tests in a suitable tension measuring device which simulates conditions of solidly fitted steel.

NOTES (Continued)
FOR

CONVERSION TO PEDESTRIAN BRIDGE OF
423'-6 1/2" CONT. GIRDER SPANS+
1664'-0" DOUBLE DECK TRUSS SPANS+
795'-7 3/8" CONT. GIRDER SPANS BRIDGE
14'-0" (S.B.) 17'-0" (N.B.) ROADWAY 0° SKEW
OVER THE MISSOURI RIVER SEC. 18-T93N-R55W
STR. NO. 68-122-210 EM0081(63)0

YANKTON COUNTY
S. D. DEPARTMENT OF TRANSPORTATION
October 2009

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DESIGNED BY:	DRAWN BY:	CHECKED BY:	APPROVED:
ATN	ATN	RTH	
BRIDGE ENGINEER			

SCOPE OF WORK

The Contractor shall salvage the existing luminaires EL1-EL36 and EUL1-EUL9 and ETL1 as shown on the plan sheets. Luminaire ETL1 is located on the bridge tower.

The Contractor shall salvage the existing luminaire poles EL1-EL36 as shown on the plan sheets.

The Contractor shall remove all the existing electrical cable for the salvaged equipment and install new cable and any new conduit as shown on the plan sheets. All existing conduit will be reused.

The Contractor shall install the new decorative poles and luminaires at the same location as EL1-EL36.

The Contractor shall install a new decorative luminaire and luminaire pole at L16.

The contractor shall install 18" surface mounted junction boxes at the same location as the salvaged luminaires UL1-UL9.

New luminaires and luminaire arms shall be installed on the under deck at UL1-UL16.

SUPPLYING AS BUILT PLANS

If the roadway lighting systems are constructed different than what is stated in the plans, the Contractor shall supply as built plans to the Engineer and a copy shall be sent to the Traffic Design Engineer. The as built plans may include conduit layouts, wiring diagrams, or other drawings depicting the changes from the original plans.

SHOP DRAWINGS AND CATALOG CUTS SUBMITTALS LIGHTING

The Contractor shall submit shop drawings and catalog cuts in accordance with Section 985 of the Standard Specifications or in Adobe PDF format.

Adobe PDF submittals shall be sent to the following email addresses:

Pete.Longman@state.sd.us
Dan.Martell@state.sd.us

SALVGE LUMINAIRE POLES AND LUMINAIRES

The Contractor shall remove the existing luminaires and luminaire poles EL1 – EL9 and EL11-EL37. The existing luminaires and luminaire poles shall be salvaged and delivered to the City of Yankton by the Contractor. The Contractor shall notify the City 5 days before the delivery of the salvaged luminaire poles. The City contact is Kevin Kuhl at (605) 668-5250.

All costs for work involved in the salvage and delivery of the existing luminaire poles and luminaires shall be incidental to the contract unit price per each for "Salvage Luminaire Pole".

POLES

Decorative luminaire poles L1-L37 shall be 14'-1" Holophane North Yorkshire Series Model #NY 14/17 CA/DGH or equal.

REMOVAL OF EXISTING ELECTRICAL CABLE

The Contractor shall remove the existing electrical cable as shown on the plan sheets. The removed cable shall become the property of the Contractor.

All costs for work involved in the removal of the existing electrical cable shall be incidental to the contract unit price lump sum for "Incidental Work"

DECORATIVE LUMINAIRES

The accepted design for the roadway luminaires L1-L37 shall provide 1.4 and greater average maintained foot-candles and a uniformity ratio (average maintained to minimum maintained foot-candles) of 3:1 and less using the following parameters:

Setback: 0 Ft.
Lamp Loss Factor (LLF): 0.8
Width of Lighted Area: 17 Ft.
Spacing: 155 Ft.
Configuration: One-Sided
Mounting Height: 18 Ft.
Lamp: 400W MH

The following luminaires meet the requirements for this design:

Holophane Test No. 101015.IES
Model # WA400MH00N3NF or equal

The accepted design for the roadway luminaires UL1-UL16 shall provide 1.4 and greater average maintained foot-candles and a uniformity ratio (average maintained to minimum maintained foot-candles) of 3:1 and less using the following parameters:

Setback: 0 Ft.
Lamp Loss Factor (LLF): 0.8
Width of Lighted Area: 17 Ft.
Spacing: 105 Ft.
Configuration: Staggered
Mounting Height: 12 Ft.
Lamp: 175W MH

The following luminaires meet the requirements for this design:

Holophane Test No. 47261.IES
Model # GV17DMH00MN3NSN or equal

Three copies of the isofootcandle charts and utilization curves shall be furnished to the Engineer for approval. The Contractor must get approval from the Engineer prior to installation of the luminaires.

The approved isofootcandle data for each case shall be used to determine the correct socket position at each site. Each luminaire shall be installed with its lamp socket in the proper position and in a level attitude.

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0081(63)0		
		9	54

LIGHTNING PROTECTION

All luminaire poles and service cabinets shall be equipped with industrial lightning arrestors compliant with current NEMA and UL Standards for lightning arrestors. Cost for ground rods and lightning arrestors shall be incidental to the contract unit price for the corresponding luminaire pole, tower lighting pole, and service cabinet bid item.

LUMINAIRE ARMS

Luminaire arms for the luminaires UL1 – UL16 on the lower deck and twin arm luminarie pole L1 shall be Holophane Annapolis Series or equal. Luminaires UL1-UL16 on the under deck shall be mounted on a NEMA 3R electrical box. The electrical box shall be no more than 6" deep and have the same dimensions as the luminaire arm base.

All costs for supply and installing decorative luminaire arms and electrical boxes shall be incidental to the contract unit price per each for "Decorative Luminaire Arm".

ANCHOR BOLTS

The Contractor shall mount the decorative luminaire poles L1-L15 and L17-L37 utilizing the existing anchor bolts on the upper deck of the structure.

The Contractor shall supply anchor bolts for luminaire pole L16. Luminaire Pole L16 is a concrete barrier mounted pole. See bridge plan sheets for details for the installation of the anchor bolts.

CONDUIT ATTACHMENT TO STRUCTURE

The method of attachment of the conduit to the bridge structure shall be approved by the Office of Bridge Design.

Steel bent plates shall conform to ASTM A36 and shall be hot dip galvanized to ASTM-A123.

Materials for bolts and wedge anchors shall be either stainless steel or hot dip galvanized according to ASTM-A123

Bent plates shall have a maximum spacing of 6'-0".

All costs for supplying and installing the conduit mounting hardware shall be included in the contract unit price per linear foot for "2" Rigid Galvanized Steel Conduit".

INCIDENTAL WORK

Incidental work includes, but is not limited to, the restoration of all disturbed areas to the satisfaction of the Engineer.

EXISTING UNDER BRIDGE DECK LUMINAIRE

The contractor shall remove the existing flood lights EUL1-EUL9 on the lower dick of the bridge and replace them with surface mounted junction boxes SMJ1 – SMJ9. The removed floodlight shall become the property of the Contractor.

All cost for removing the Under Bridge Deck Luminaire shall be incidental to the contract unit price per each for "Surface Mounted Junction Box".

SURFACE MOUNTED JUNCTION BOXES

Surface mounted junction boxes SMJ1-SMJ9 shall comply with NEMA 4X stainless steel, shall be UL-listed and, at a minimum shall be sized according to Article 314 of the 2005 National Electrical Code. Stainless steel junction boxes shall have the cover held in place with a continuous hinge and kept closed with screws and clamps on the remaining three sides. The cover shall be removable by removing the pin with the continuous hinge. All seams shall be continuously welded. Gaskets shall be closed cell neoprene.

INSTALLATION OF CONDUIT EXPANSION FITTING

Expansion fittings shall be installed in the lighting conduit to compensate for expansion and shrinkage due to temperature variations. An expansion fitting shall be place adjacent to and on each side of the bridge expansion devices. The expansion fitting shall be installed as shown below with the appropriate "A" dimension for the applicable range of ambient temperature as listed in the following chart.

"A" Dim	Temp. (Deg F)	"A" Dim	Temp (Deg F.)
4 7/16"	26-35	3 3/8"	66-78
4 3/16"	36-45	3 1/16"	76-85
3 15/16"	46-55	3 13/16"	86-95
3 5/8"	56-65	2 9/16"	96-105

The expansion fitting shall have a minimum movement capability of 6 inches.

All costs for supplying and installing the expansion fitting shall be included in the contract unit price per linear foot for "2" Rigid Galvanized Steel Conduit".

TOWER LIGHT

The Contractor shall remove the existing flood light from the south tower of the bridge. The removed flood light shall become the property of the Contractor.

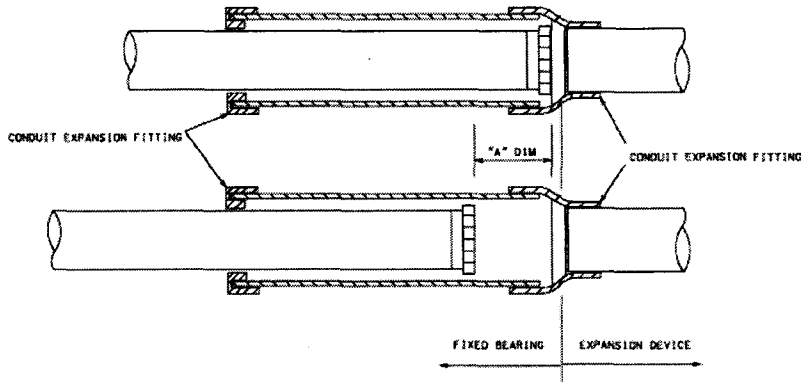
All cost for removing the tower light shall be incidental to the contract unit price per lump sum for "incidental Work".

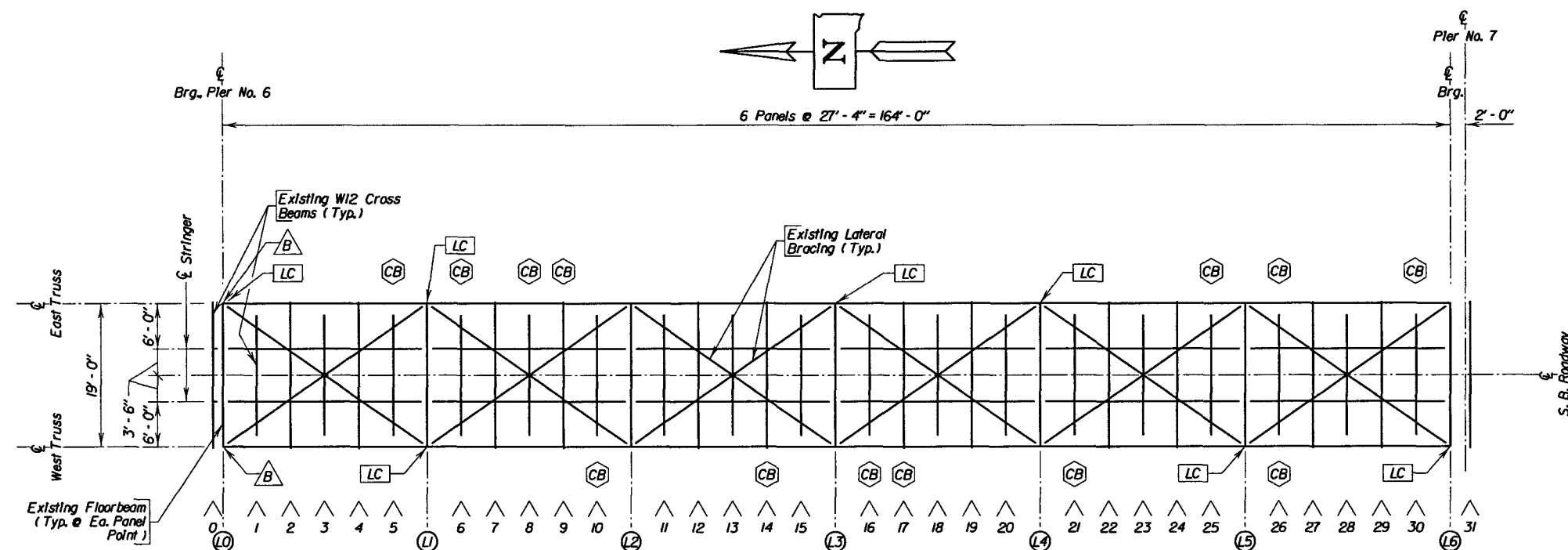
SPLICES

Splices shall be made using compression-crimp splice connectors. Splices shall carry full ampacity of conductors without perceptible temperature rise. Compression-crimp splices shall be wrapped with Scotch brand #2210 or approved equal, mastic tape followed by Scotch brand #2242 or approve equal, rubber based electrical tape, as necessary to maintain the level of insulation of the wire which are being spliced.

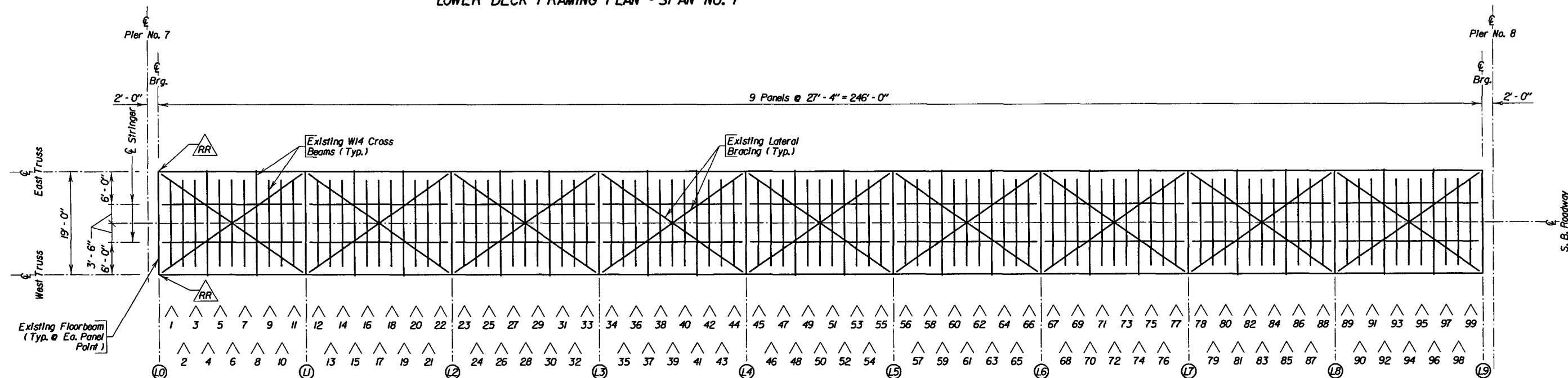
No splices shall be pulled into any conduit.

FOR BIDDING PURPOSES ONLY





LOWER DECK FRAMING PLAN - SPAN NO. 7



LOWER DECK FRAMING PLAN - SPAN NO. 8

TRUSS FLOOR FRAMING PLANS
FOR

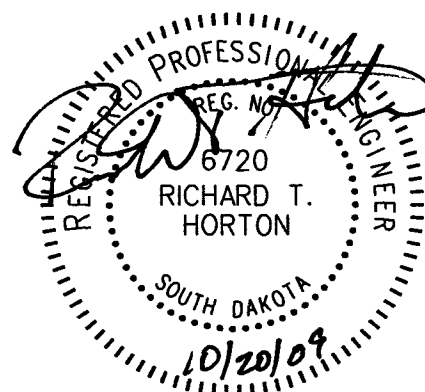
CONVERSION TO PEDESTRIAN BRIDGE OF
423'-6 1/2" CONT. GIRDER SPANS+
1664'-0" DOUBLE DECK TRUSS SPANS+
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YANKTON COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2009

(10) OF (53)

LEGEND:

(LO)	= Panel Point Mark
1	= Cross Beam Mark
CB	= Cross Beam Repair, See Sheet No. 15 of 53.
LC	= Truss Lower Chord Joint Repair, See Sheet Nos. 16 Thru 21 of 53.
B	= Bearing Replacement, See Sheet Nos. 23 Thru 26 of 53.
RR	= Reset Rocker Bearing



HDR

DESIGNED BY ATN	DRAWN BY ACB	CHECKED BY RTH
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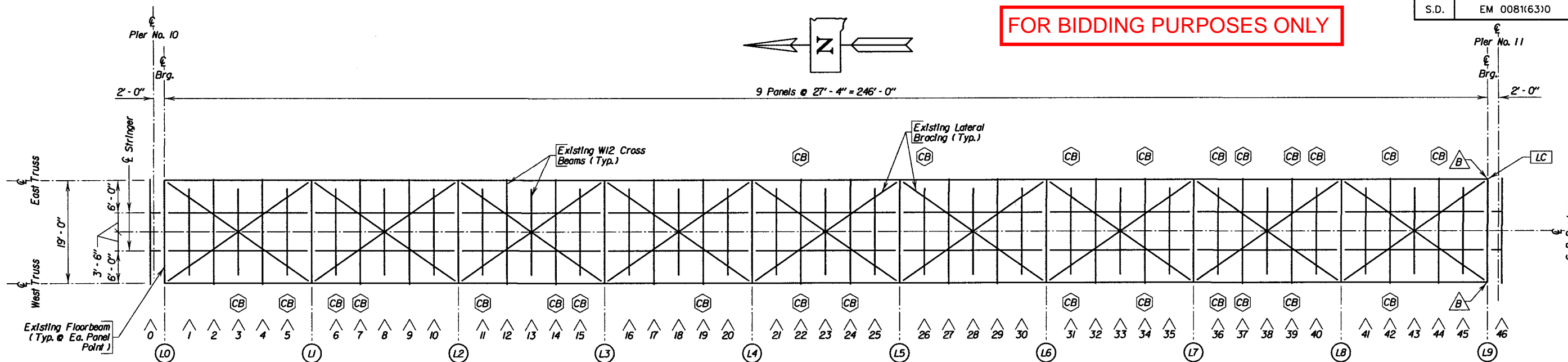
BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	EM 0081(63)0	13	54

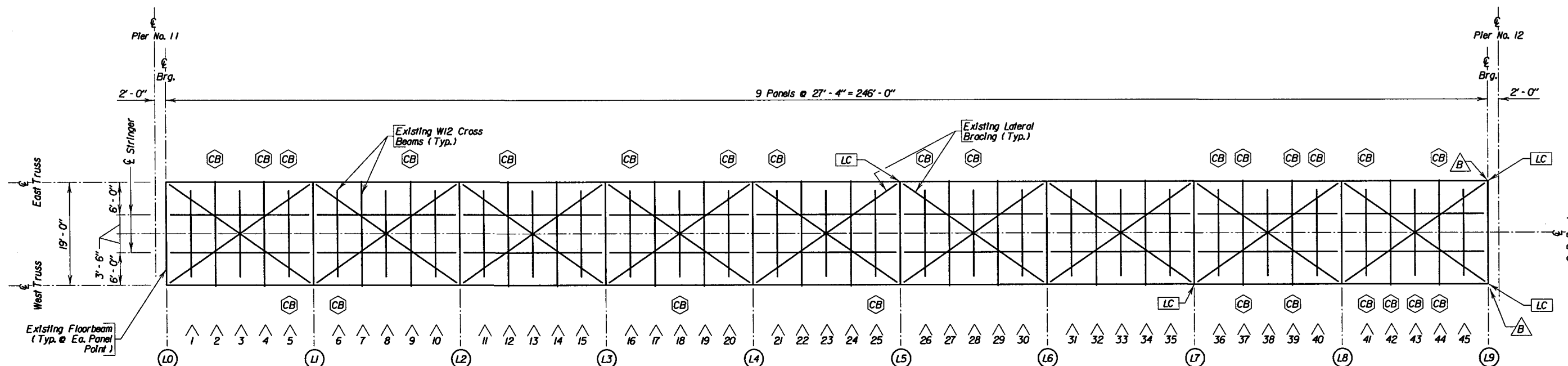
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9 Panels @ 27' - 4" = 246' - 0"



LOWER DECK FRAMING PLAN - SPAN NO. 11



LOWER DECK FRAMING PLAN - SPAN NO. 12

TRUSS FLOOR FRAMING PLANS
FOR

CONVERSION TO PEDESTRIAN BRIDGE OF
423'-6 1/2" CONT. GIRDER SPANS+
1664'-0" DOUBLE DECK TRUSS SPANS+
795'-7 3/8" CONT. GIRDER SPANS+
14'-0" (S.B.) 17'-0" (N.B.) ROADWAY 0° SKEW
OVER THE MISSOURI RIVER SEC. 18-T93N-R55W
STR. NO. 68-122-210 EM0081(63)0

YANKTON COUNTY

S. D. DEPT. OF TRANSPORTATION

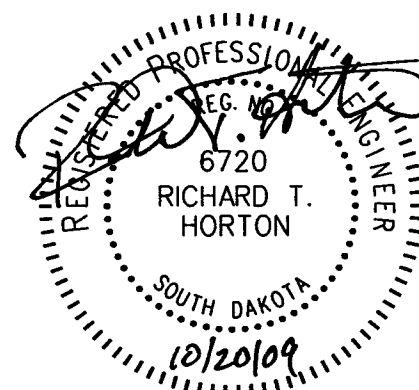
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ATN	ACB	RTH	



LEGEND:

LO = Panel Point Mark

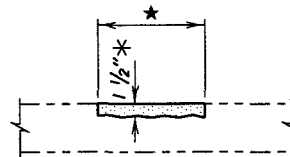
1 = Cross Beam Mark

CB = Cross Beam Repair, See Sheet No. 15 of 53.

LC = Truss Lower Chord Joint Repair, See Sheet Nos. 16 Thru 21 of 53.

B = Bearing Replacement, See Sheet Nos. 23 Thru 26 of 53.

RR = Reset Rocker Bearing



* - 1 1/2" or the depth at which sound concrete is encountered, whichever is greater.

* - Limits of repair area to be determined in the field by the Engineer.

REPAIR OF SPALLS

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SCHEDULE OF SPALL REPAIRS - DECK AND BARRIERS

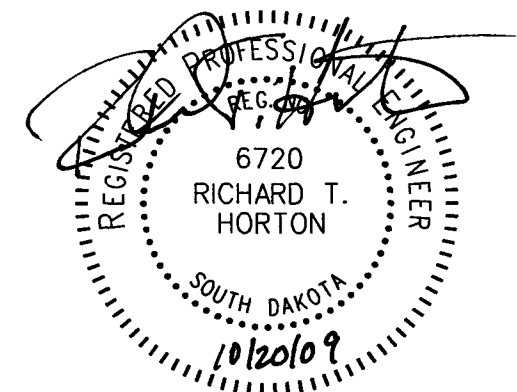
SCHEDULE OF SPALL REPAIRS - DECK AND BARRIERS

Lower Deck				Upper Deck				West Concrete Barrier			West Concrete Barrier			West Concrete Barrier			East Concrete Barrier			East Concrete Barrier			East Concrete Barrier			
Span	Distance	Offset	Area (sq. ft.)	Span	Distance	Offset	Area (sq. ft.)	Span	Distance	Area (sq. ft.)	Span	Distance	Area (sq. ft.)	Span	Distance	Area (sq. ft.)	Span	Distance	Area (sq. ft.)	Span	Distance	Area (sq. ft.)	Span	Distance	Area (sq. ft.)	
7	36'	13'	1	1	1'	4'	1	North Appr.	25'	2		92'	6	17	8'	8	North Appr.	38'	3	11	117'	36	17	39'	6	
	3'	8'	2	3	62'	11'	5		44'	1		102'	2		17'	14		57'	5		130'	20		18	15'	3
	5'	12'	1	4	1'	5'	5	1	60'	2		111'	2		33'	7	2	115'	4		152'	16		19	25'	2
	7'	9'	1	6	41'	7'	5	3	18'	1		130'	10		44'	2	4	63'	2		163'	8		20	46'	1
	44'	2'	1	7	27'	12'	2	6	20'	1		153'	8		1'	1	6	50'	1		173'	8		21	21'	10
	171'	9'	1	8	166'	6'	4	7	22'	1		160'	2	18	10'	6	4	56'	2		178'	1		22	41'	12
	190'	13'	1		1'	6'	2		2'	1		168'	18		21'	6		60'	2		183'	2		21	46'	1
9	248'	5'	1	9	62'	4'	1	8	146'	1		175'	8		35'	12		64'	2		38'	6		22	55'	2
	6'	4'	4	9	248'	9'	4		83'	1		181'	2		51'	6		76'	4		46'	9		23	45'	1
	49'	10'	2		1'	6'	1		95'	9		185'	1		22	44'	1	10'	1	54'	6	23	47'	2		
	95'	10'	1	11	120'	4'	1		124'	3		216'	10	25	43'	3	5	21'	2	61'	3	25	1'	1		
	118'	9'	3		137'	5'	3		137'	1		221'	5		59'	2		46'	3	97'	16					
	124'	14'	2	12	122'	5'	2		210'	1		242'	1		26	28'	2	50'	6	105'	12					
	143'	2'	2		216'	4'	3	19	213'	5		248'	4					76'	1	110'	6					
10	156'	14'	2	19	1'	9'	4		240'	3		22'	1					87'	3	130'	8					
	195'	9'	4		34'	4'	1		117'	1		28'	3					31'	5	150'	4					
	206'	12'	3		38'	7'	3		128'	1		35'	6					122'	8	157'	6					
	1'	5'	2		39'	11'	2		134'	8		52'	2					6'	1	167'	8					
	8'	1'	4	22	46'	12'	3		140'	1		67'	4					9'	2	175'	12					
	9'	7'	1		51'	12'	4	24	144'	1		95'	4	12				39'	12	192'	8					
	10'	12'	6		59'	8'	18		158'	1		126'	12					49'	4	201'	6					
11	21'	15'	5		33'	10'	4		162'	2		153'	18					52'	4	213'	3					
	42'	12'	4		41'	3'	1	9	181'	5		190'	5					115'	6	221'	15					
	47'	9'	4	22					204'	1		214'	16					103'	1	235'	6					
	52'	14'	3						211'	8		224'	4					172'	6	244'	10					
	60'	2'	2						218'	14		231'	14					176'	2	244'	10					
	65'	14'	5					10	235'	2		12'	3	13				180'	1	244'	10					
	79'	2'	4						239'	4		31'	3					185'	3	244'	10					
12	102'	13'	16						246'	12		86'	4					232'	16	244'	10					
	111'	14'	3						11'	16		105'	3					242'	16	244'	10					
	122'	2'	3					10	24'	8		120'	48					7'	1	244'	10					
	134'	13'	6						38'	6		173'	8					23'	10	244'	10					
	176'	14'	4						46'	3		195'	20					34'	6	244'	10					
	189'	14'	3						68'	2		206'	4					46'	8	244'	10					
	192'	3'	2					11	8'	1		245'	8					55'	8	244'	10					
12	202'	14'	8						31'	4		8'	14	15				68'	3	244'	10					
	242'	14'	12						46'	4		47'	15					73'	7	244'	10					
	114'	14'	2						54'	1		59'	2					86'	24	244'	10					
12	165'	9'	16					12	72'	20		32'	8	16				108'	8	244'	10					
																			244'	10						

NOTE-

Distance Is Measured from the North End of Deck.
Offset Is Measured from the West Edge of Deck.

ESTIMATED QUANTITIES		
Item	Unit	Quantity
Concrete Patching Material	Cu. Ft.	186.6
Concrete Removal, Type A	Sq. Yd.	150.8
Concrete Removal, Type B	Sq. Yd.	151



CONCRETE SPALL REPAIRS
FOR
CONVERSION TO PEDESTRIAN BRIDGE OF
423'-6 1/2" CONT. GIRDER SPANS+
1664'-0" DOUBLE DECK TRUSS SPANS+
795'-7 3/8" CONT. GIRDER SPANS BRIDGE
14'-0" (S.B.) 17'-0" (N.B.) ROADWAY 0° SKEW
OVER THE MISSOURI RIVER SEC. 18-T93N-R55W
STR. NO. 68-122-210 EM0081(63)0

YANKTON COUNTY

S. D. DEPT. OF TRANSPORTATION

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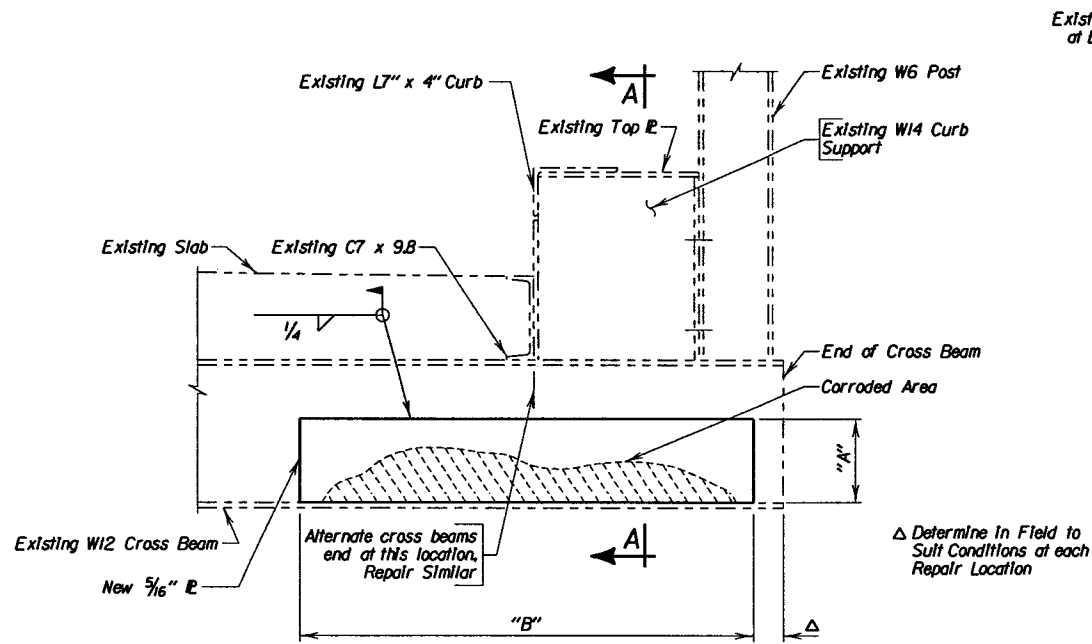
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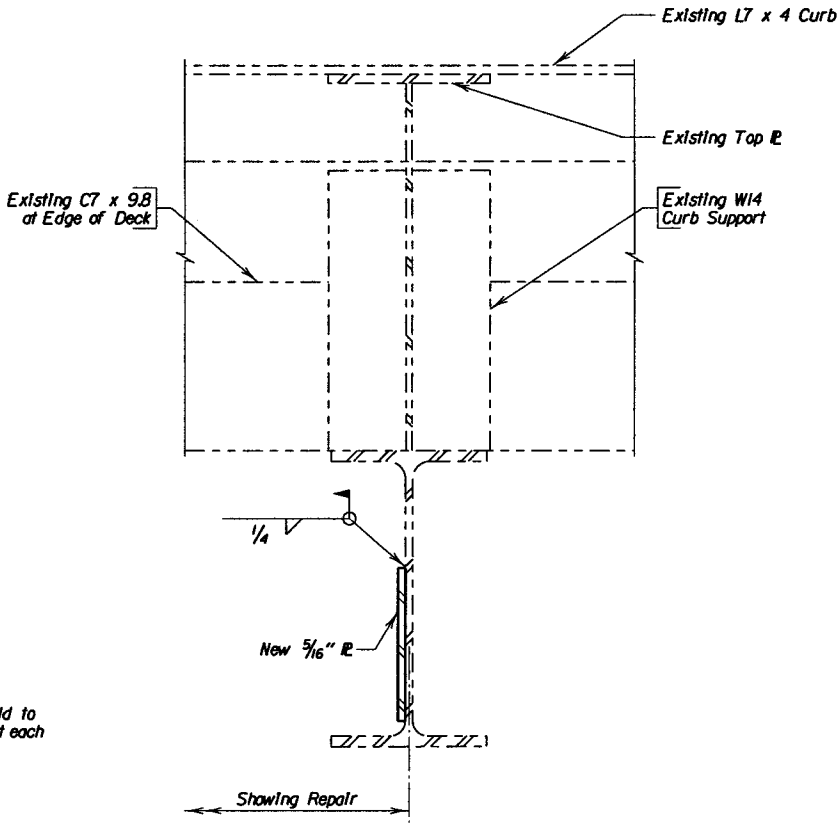
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ATN	ACB	RTN	
BRIDGE ENGINEER			

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
Structural Steel	Lb.	2452



CROSS BEAM REPAIR DETAIL - "CB"



SEC. A - A

SCHEDULE OF CROSS BEAM REPAIRS

Span	Cross Beam Mark	West Side	East Side	Span	Cross Beam Mark	West Side	East Side	Span	Cross Beam Mark	West Side	East Side
7	5	-	5" 40"	11	3	6" 39"	-	13	2	6" 24"	9" 36"
	6	-	3" 30"		5	6" 39"	-		3	9" 36"	-
	8	-	5" 40"		6	6" 45"	-		5	-	6" 39"
	9	-	5" 40"		7	6" 45"	-		7	-	9" 39"
	10	5" 36"	-		11	6" 39"	-		8	-	6" 36"
	14	4" 24"	-		14	6" 36"	-		9	6" 36"	9" 48"
	16	5" 30"	-		15	6" 21"	-		10	6" 36"	-
	17	3" 21"	-		19	6" 21"	-		11	6" 36"	6" 42"
	21	3" 21"	-		22	6" 45"	6" 48"		12	-	6" 45"
	25	-	3" 30"		24	6" 42"	-		13	-	6" 45"
9	26	6" 40"	5" 30"	12	26	-	6" 48"	13	14	6" 45"	9" 48"
	30	-	3" 21"		31	6" 36"	6" 42"		16	6" 36"	9" 42"
	13	-	3" 21"		34	6" 45"	6" 48"		19	6" 42"	6" 36"
	14	4" 27"	-		36	6" 45"	9" 48"		23	6" 18"	-
	17	-	5" 27"		37	6" 45"	9" 48"		24	-	6" 36"
	19	-	6" 36"		39	6" 33"	6" 36"		26	-	6" 36"
	21	4" 30"	-		40	-	6" 36"		27	-	9" 48"
	26	4" 30"	-		42	6" 48"	6" 48"		28	6" 30"	9" 39"
	27	-	3" 15"		44	-	6" 48"		31	6" 30"	-
	28	4" 30"	-		2	-	6" 36"		32	-	6" 42"
10	29	-	6" 30"	12	4	-	6" 21"	13	33	-	6" 30"
	30	4" 24"	-		5	6" 30"	6" 36"		34	6" 36"	6" 30"
	37	-	6" 48"		6	6" 36"	-		36	-	6" 42"
	39	5" 27"	-		9	-	6" 48"		37	-	6" 42"
	42	6" 33"	-		12	-	6" 36"		41	6" 48"	-
	1	4" 40"	-		16	-	9" 48"		43	-	6" 36"
	6	4" 24"	-		18	9" 48"	-				
	10	6" 30"	-		20	-	6" 39"				
	16	6" 30"	-		21	-	9" 48"				
	21	9" 18"	-		25	6" 30"	-				
	24	4" 30"	-		26	-	6" 48"				
	41	6" 40"	-		28	-	9" 42"				
	44	6" 40"	-		36	-	9" 48"				
	45	4" 24"	-		37	6" 48"	9" 48"				
					39	6" 24"	6" 48"				
					40	-	6" 36"				
					41	6" 42"	6" 39"				
					42	6" 42"	-				
					43	9" 42"	-				
					44	6" 42"	6" 48"				

FOR BIDDING PURPOSES ONLY

NOTES -

- Plates for Repair may be installed on either side of the cross beam.
- The base metal of existing structural steel surfaces within the limits of the repair plate and welding shall be blast cleaned at the replacement area prior to field welding new plates into position.
- Area of repair is to be field painted in accordance with Section 412 of the construction specifications after new plates have been welded in place.

CROSS BEAM REPAIRS
FOR

CONVERSION TO PEDESTRIAN BRIDGE OF
423'-6 1/2" CONT. GIRDER SPANS+
1664'-0" DOUBLE DECK TRUSS SPANS+
795'-7 3/8" CONT. GIRDER SPANS BRIDGE
14'-0" (S.B.) 17'-0" (N.B.) ROADWAY 0° SKEW
OVER THE MISSOURI RIVER SEC. 18-T93N-R55W
STR. NO. 68-122-210 EM0081(63)0

YANKTON COUNTY
S. D. DEPT. OF TRANSPORTATION

OCTOBER 2009

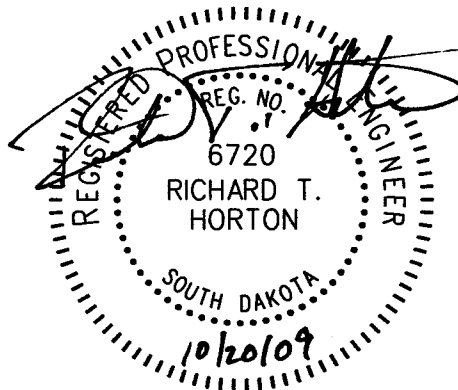
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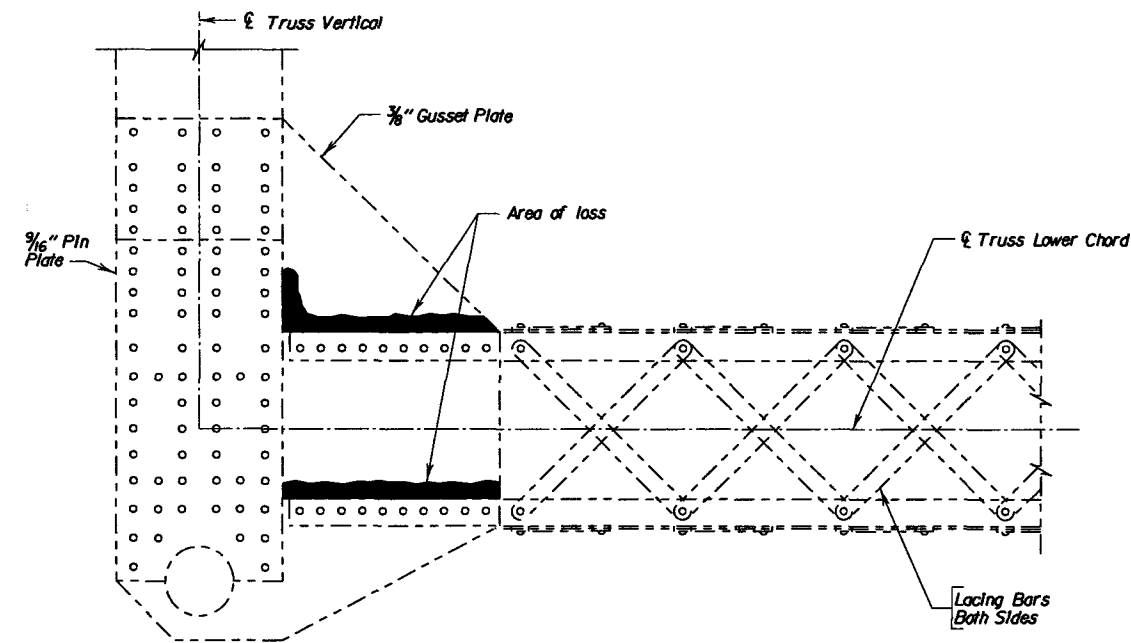
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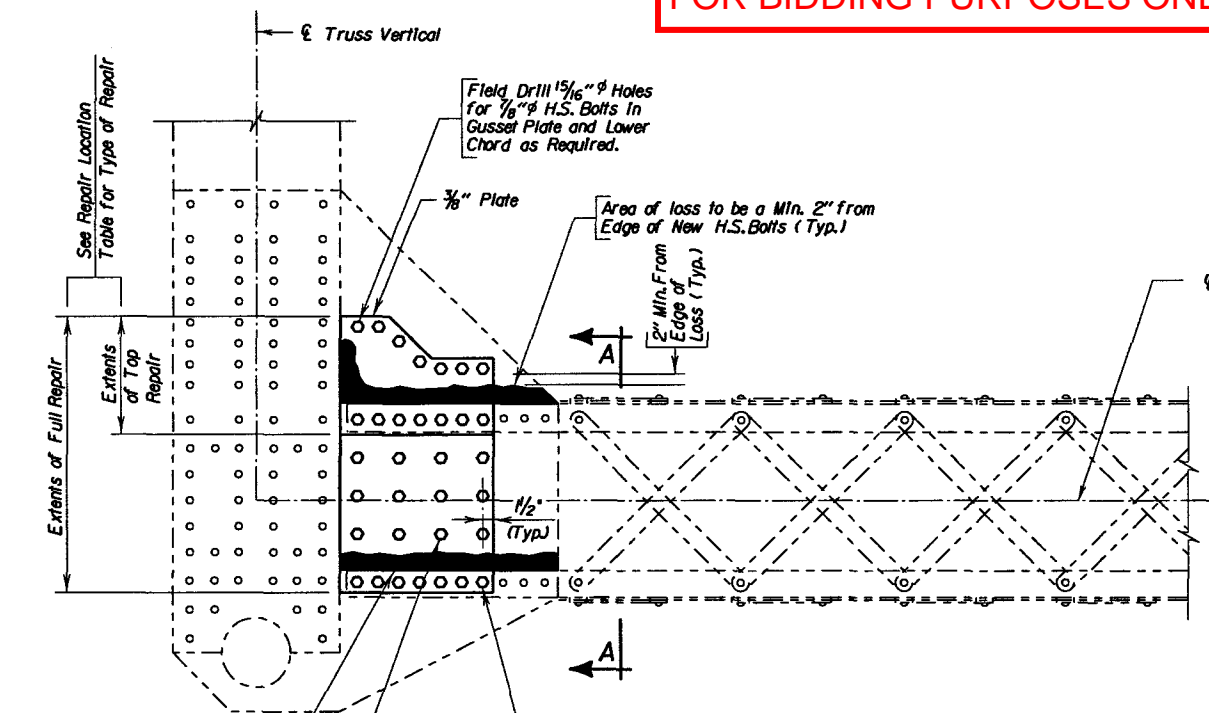
BRIDGE ENGINEER



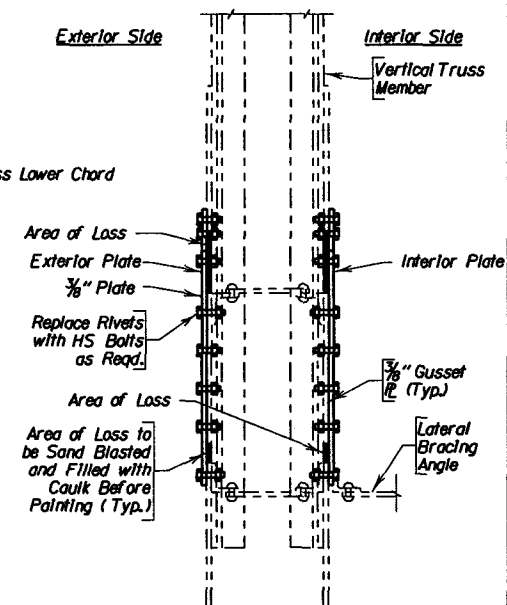
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LOWER END POST GUSSET REPAIR
(Existing Condition)



LOWER END POST GUSSET REPAIR
(Final Condition Full Repair Shown)



SECTION A-A

Note: 1/16\" Pin Plate not shown for clarity

Repair Sequence for Truss Lower Chord Joint Repair, End Post

- During the Truss Lower Chord Joint Repairs, the bridge is to be closed to all traffic on both decks. In any span in which a repair is being performed, no loads from equipment, supplies or personnel are to be present. Work is to be conducted from below via scaffolding or a man-lift on the ground or a barge in the river.
- No more than one Truss Lower Chord Joint may be repaired at a time within a Truss span.
- The defined area of loss at each repair location as well as any existing steel that is to come in contact with new steel is to be blast cleaned prior to repair as per the Standard Specifications for Blast Cleaning. Apply prime coat to blast cleaned surfaces and Rust Penetrating Sealer to pack rust areas as required prior to installing repair plates.
- Repair items consisting of Rivet Removal, Field Drilling, New Plate Installation, Caulking and Bolt Tensioning shall be completed for one side of the joint (labeled either Exterior or Interior) prior to beginning repair on the other side.
- Remove existing drain pipe as required to facilitate repair.
- Remove existing rivets and field drill the required holes in the gusset plate for the new high strength bolts as shown in Lower End Post Gusset Repair Detail.
- Install the plates required per the joint repair.
- Reinstall drain pipe.
- Repeat steps 5 through 8 for the other side of the joint as required.

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Repair Gusset Plate, End Post	Each	12

Item Includes all repairs specified at each end post location in the "Repair Location Table". This includes repair of the interior and/or exterior plate at the joint, as required per location.

NOTE:

- Drain Pipe Not Shown for Clarity.
- See Sheet Nos. 10 Thru 13 of 53 for joints scheduled for repair.

REPAIR LOCATION TABLE				
SPAN NO.	TRUSS	JOINT	GUSSET	REPAIR TYPE
7	East	L0	Ext.	Top
7	West	L6	Ext.	Top
9	East	L9	Int. & Ext.	Top
10	East	L9	Ext.	Top
10	West	L9	Ext.	Top
11	East	L9	Int. & Ext.	Top
12	East	L9	Int. & Ext.	Full
12	West	L9	Int. & Ext.	Full
13	East	L0	Int. & Ext.	Full
13	East	L9	Int. & Ext.	Full
13	West	L0	Int. & Ext.	Top
13	West	L9	Ext.	Top

LOWER GUSSET PLATE JOINT REPAIR DETAILS FOR

CONVERSION TO PEDESTRIAN BRIDGE OF
423'-6 1/2" CONT. GIRDER SPANS+
1664'-0" DOUBLE DECK TRUSS SPANS+
795'-7 3/8" CONT. GIRDER SPANS BRIDGE
14'-0" (S.B.) 17'-0" (N.B.) ROADWAY 0° SKEW
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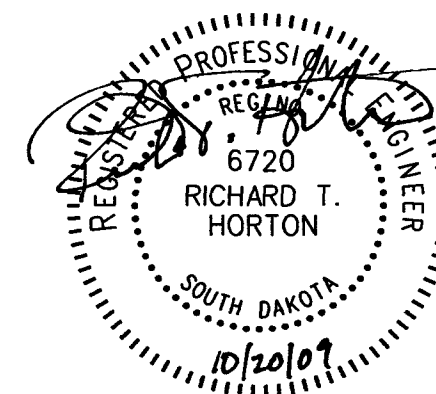
YANKTON COUNTY
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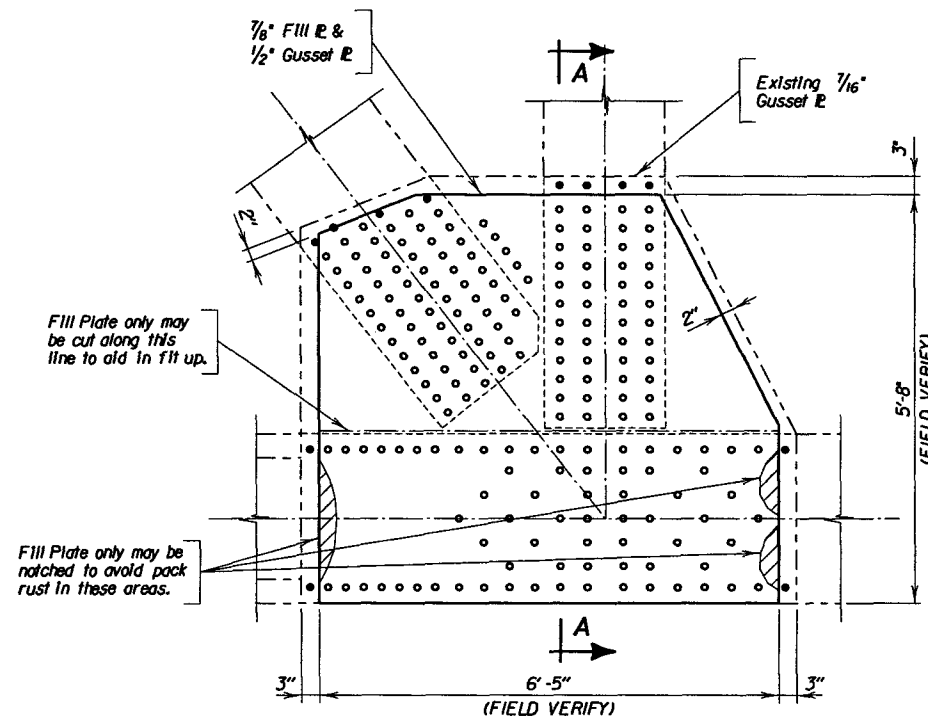
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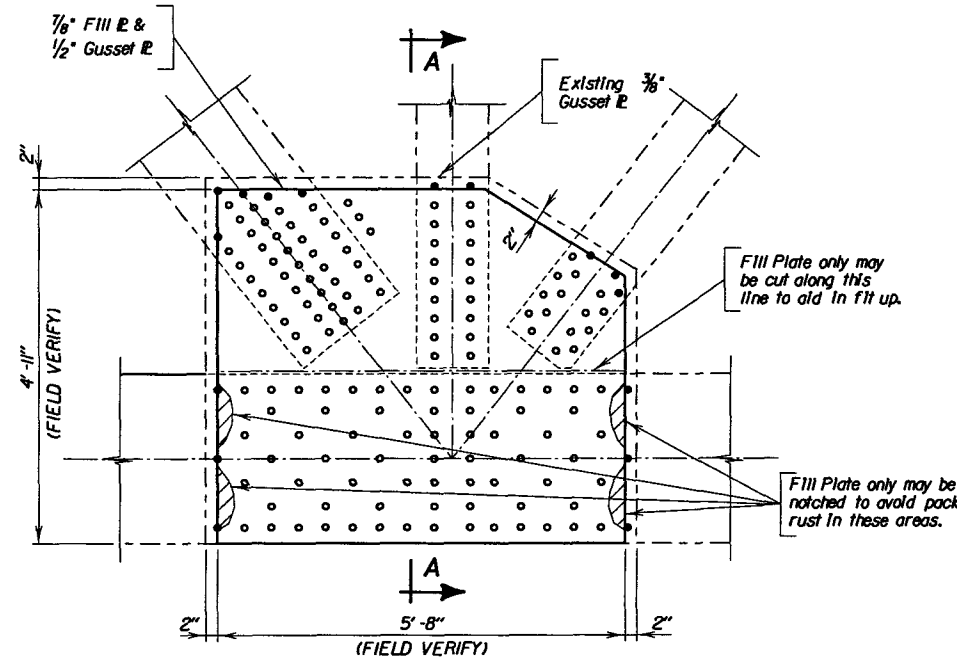
BRIDGE ENGINEER



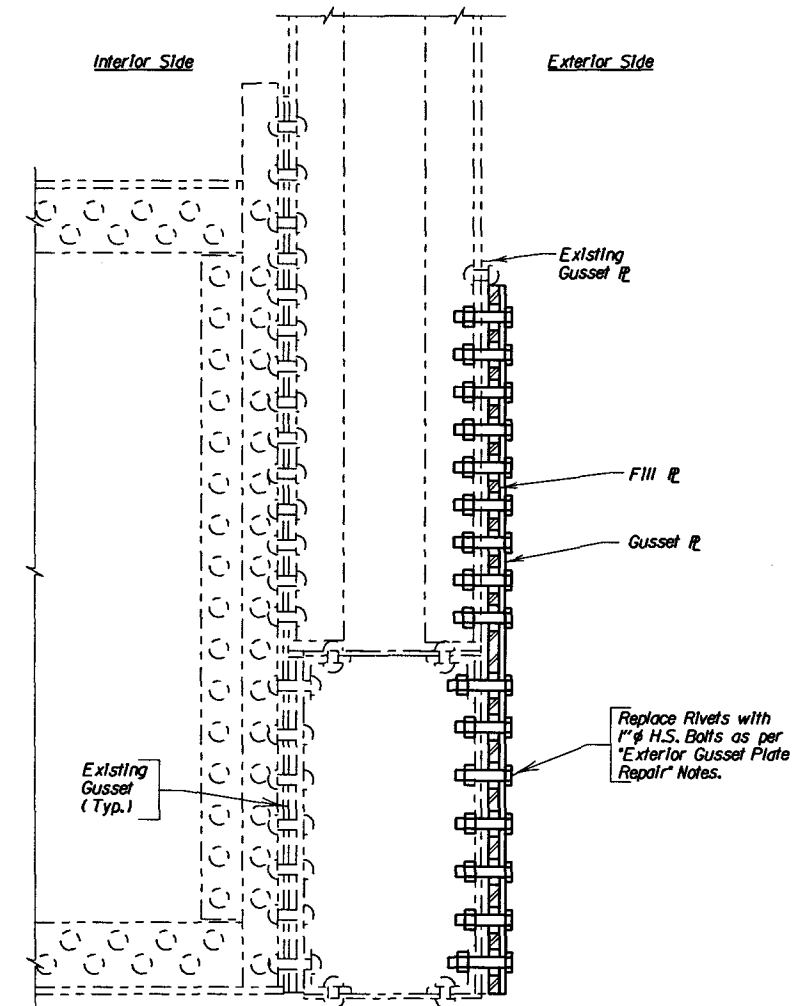
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SPAN 7 - JOINTS L1 OR L5
EXTERIOR GUSSET REPAIR



SPAN 7 - JOINT L4
EXTERIOR GUSSET REPAIR



SECTION A - A

- NOTES:
- - Rivets to replace
● - Rivets to remain
 - See Sheet Nos. 19 Thru 21 of 53 for Interior Gusset Repair Details.
 - See Sheet Nos. 10 Thru 13 of 53 for Joints scheduled for repair.

LOWER GUSSET PLATE JOINT REPAIR DETAILS
FOR

CONVERSION TO PEDESTRIAN BRIDGE OF
423'-6 1/2" CONT. GIRDER SPANS+
1664'-0" DOUBLE DECK TRUSS SPANS+
795'-7 3/8" CONT. GIRDER SPANS+
14'-0" (S.B.) 17'-0" (N.B.) ROADWAY 0° SKEW
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OCTOBER 2009

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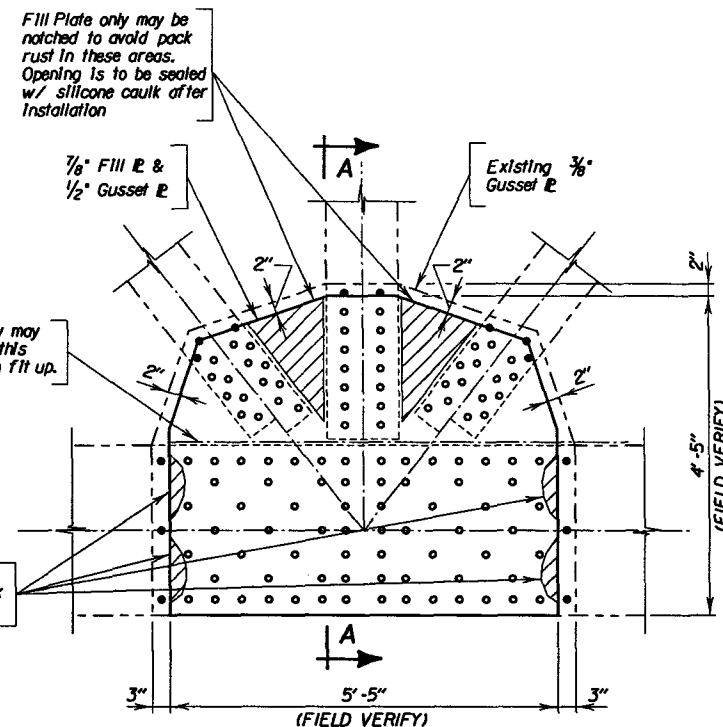
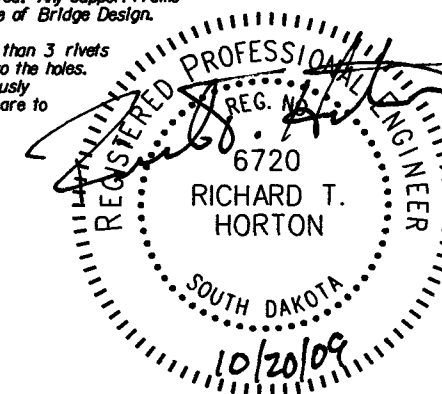
BRIDGE ENGINEER

REPAIR SEQUENCE FOR TRUSS LOWER CHORD JOINT REPAIR

- During the Truss Lower Chord Joint Repairs, the bridge is to be closed to all traffic on both decks. In any span in which a repair is being performed, no loads from equipment, supplies or personnel are to be present. Work is to be conducted from below via scaffolding or a man-lift on the ground.
- No more than one Truss Lower Chord Joint may be repaired at a time within a Truss span.
- Any existing steel that is to come in contact with new steel shall be blast cleaned prior to repair as per the Standard Specifications for Blast Cleaning. Apply prime coat to blast cleaned surfaces prior to installing repair plates.
- Repair items consisting of Rivet Removal, Field Drilling, Gusset and FIII Plate Installation and Bolt Tensioning shall be completed for Exterior Gusset Plate prior to beginning repair on the Interior Gusset Plate.

EXTERIOR GUSSET PLATE REPAIR

- Dimensions of both the FIII Plate and the New Gusset Plate are to be verified on the Gusset to be repaired.
- The rivet locations on the existing Gusset Plate are to be marked on both the FIII Plate and the New Gusset Plate. 1 3/4" diameter holes are to be drilled in the FIII Plate at the location of each rivet. Pilot holes are to be drilled in the New Gusset Plate to match the rivet locations.
- Both the FIII Plate and the New Gusset Plate are to be lifted into position and secured in place by means of clamps. No welding to the existing structure is allowed. Any support frame connected to the structure is to be approved by the SDDOT Office of Bridge Design.
- Rivets shall be removed by drilling a 1/16" diameter hole. No more than 3 rivets may be removed prior to installing 1" diameter A-325 HS bolts into the holes. Bolts are to be tensioned using the Turn-of-Nut method. All previously installed bolts within a 12" radius of the 3 newly installed bolts are to have their tension verified before removing any additional rivets.



SPAN 7 - JOINT L3
EXTERIOR GUSSET REPAIR

Technical drawing of a bridge deck cross-section. The drawing includes the following details:

- Dimensions:**
 - Overall width: 8'-3" (FIELD VERIFY)
 - Overall height: 5'-8" (FIELD VERIFY)
 - Horizontal segments from left to right: 3', 2'-2 1/2", 2'-0", 1'-4 1/2", 2'-0", 5'
 - Vertical segments from top to bottom: 1'-4", 5'
- Materials and Components:**
 - Existing Concrete Deck
 - 9/16" Existing Gusset PL
 - 7/16" FILL PL & 5/8" Gusset PL
- Notes:**
 - "FILL Plate only may have a groove or cut along this line to aid in fit up."
 - "FILL Plate only may be notched to avoid pack rust in these areas."
- Section Line:** A-A

3"

2'-1/2" (FIELD VERIFY)

5'-1 1/2" (FIELD VERIFY)

2"

Existing Concrete Deck

1/2" Existing Gusset P

7/8" Fill P & 5/8" Gusset P

Fill Plate only may have a groove or cut along this line to aid in fit up.

5'-8"

2"

Fill Plate only may be notched to avoid pack rust in these areas.

A

Existing Concrete Deck

$\frac{7}{16}$ " Existing Gusset Pl.

$\frac{7}{16}$ " FILL PL. & $\frac{1}{2}$ " Gusset Pl.

FILL Plate only may have a groove or cut along this line to aid in fit up.

FILL Plate only may be notched to avoid pack rust in these areas.

3" 6'-0" 3"

(FIELD VERIFY)

1 1/2"

5'-5 1/2" (FIELD VERIFY)

Technical drawing showing a cross-section of a bridge deck structure, detailing the installation of a new fill plate and gusset plate. The drawing includes dimensions and callouts for various components and requirements.

Dimensions:

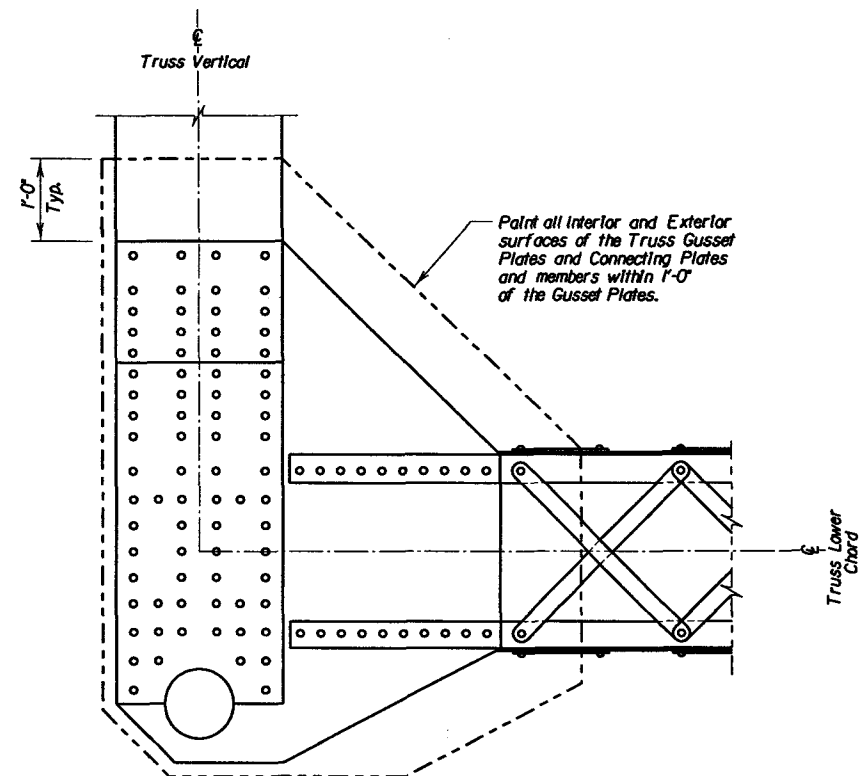
- Overall width: 5'-7" (FIELD VERIFY)
- Overall height: 4'-0"
- Top section height: 5 1/2' 6 1/2" 6"
- Bottom section height: 6'-5" (FIELD VERIFY)
- Horizontal dimensions (from left to right): 3", 8", 1'-5", 1'-0", 1'-6", 1'-4", 3"

Callouts and Notes:

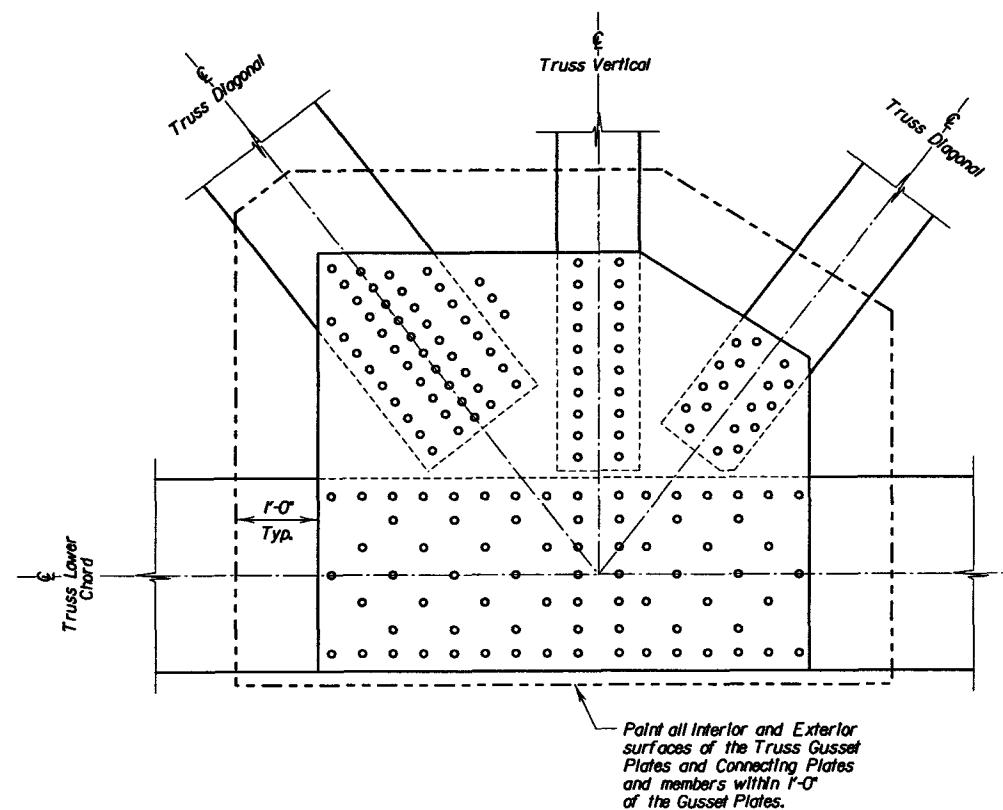
- Existing Concrete Deck
- Fill Plate only may be notched to avoid pack rust in these areas. Opening is to be sealed w/ caulk after installation.
- 1/8" Fill P & 1/2" Gusset P
- Fill Plate only may have a groove or cut along this line to aid in fit up.
- Fill Plate only may be notched to avoid pack rust in these areas.
- 1/8" Existing Gusset P

Client: 007283 Project: 0000000000066456
 filename: 68122210_020
 User: bgreen
 Date Plotted: Thursday, October 15, 2009 11:42:49 AM

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	EM 0081(63)0	23	54



LOWER CHORD END JOINTS

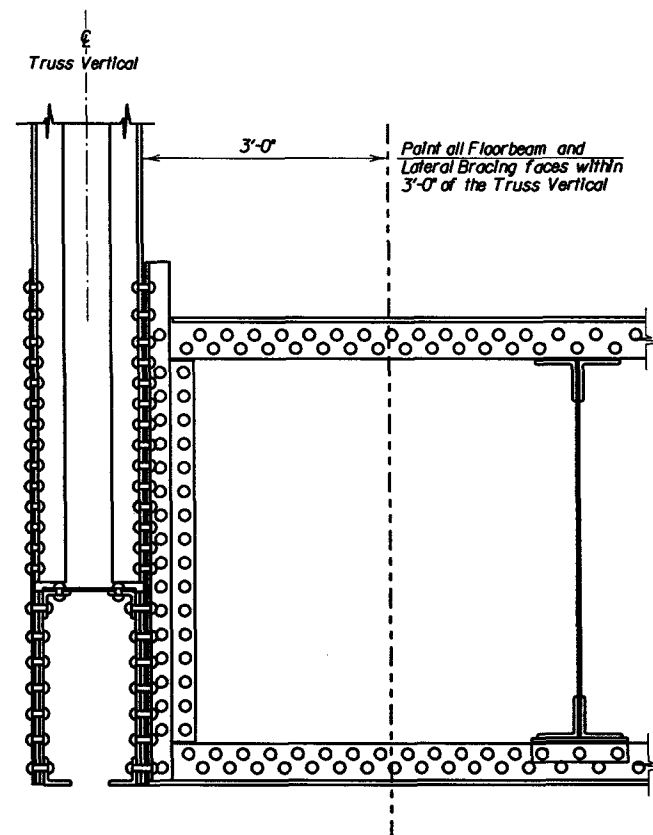


LOWER CHORD INTERIOR JOINTS

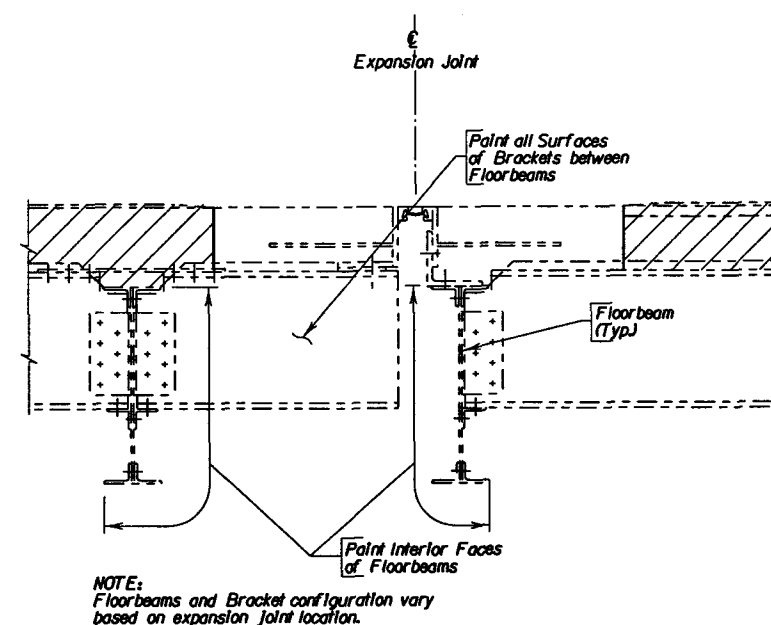
NOTES:

1. All lower chord truss joints shall be blast cleaned and painted to the limits shown.
2. For notes and locations for the rust penetrating sealer, see Sheet No. 6 of 53.
3. During the Blast Cleaning and Repainting the bridge is to be closed to all traffic in any span in which Blast Cleaning is being performed no load from equipment, supplies or personnel are to be present.
4. After the areas have been blast cleaned, the Engineer shall inspect the section and measure the section loss of the gusset.

FOR BIDDING PURPOSES ONLY

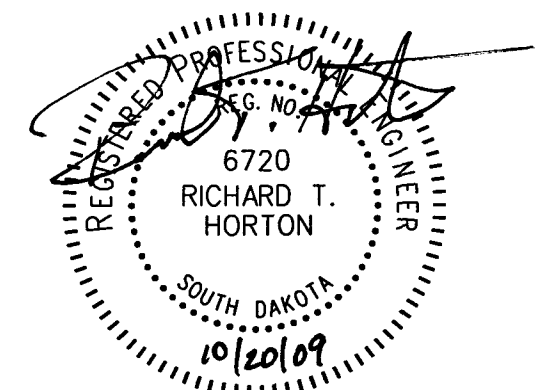


FLOOR BEAM AND LATERAL BRACING
(Interior and End Lower Chord Joints)



FLOORBEAMS AND BRACKETS AT EXPANSION JOINT

(At Piers 6 Thru 12 Upper Deck
At Piers 6 Thru 13 Lower Deck)



LOWER GUSSET PLATE PAINT DETAILS
FOR

CONVERSION TO PEDESTRIAN BRIDGE OF
423'-6 1/2" CONT. GIRDER SPANS+
1664'-0" DOUBLE DECK TRUSS SPANS+
795'-7 3/8" CONT. GIRDER SPANS BRIDGE
14'-0" (S.B.) 17'-0" (N.B.) ROADWAY 0° SKEW
OVER THE MISSOURI RIVER SEC. 18-T93N-R55W
STR. NO. 68-122-210 EM0081(63)0

YANKTON COUNTY

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OCTOBER 2009

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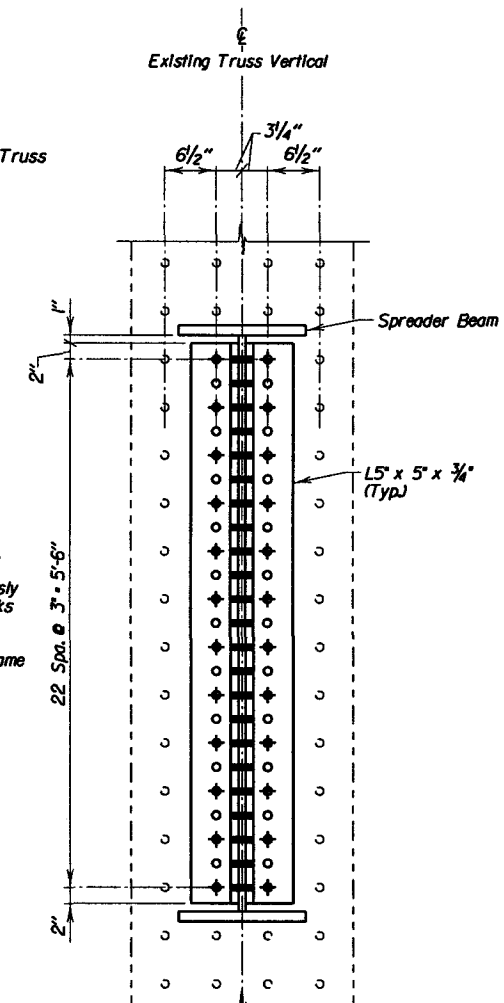
BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

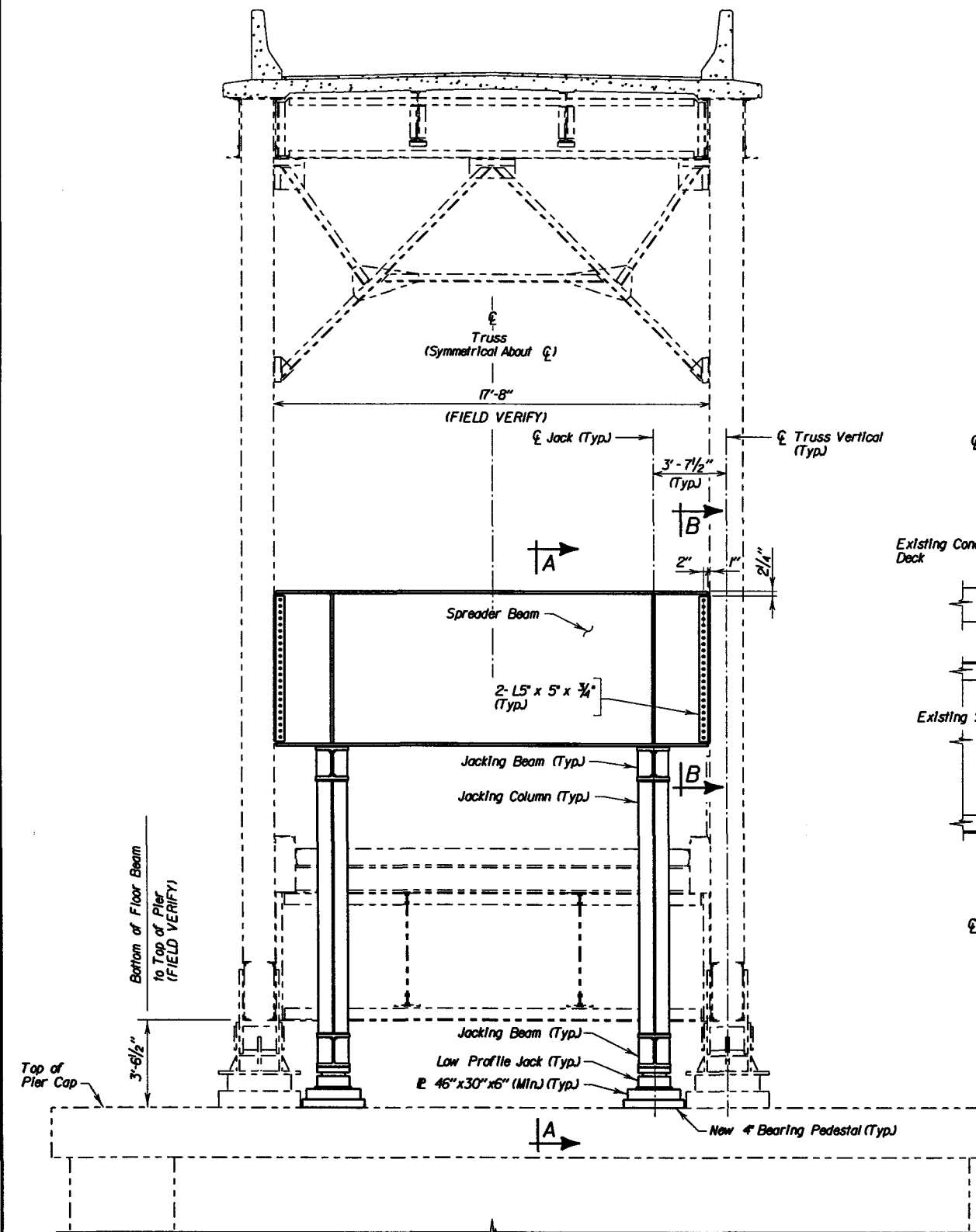
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	EM 0081(63)0	24	54

BEARING REPLACEMENT & RESETTING NOTES:

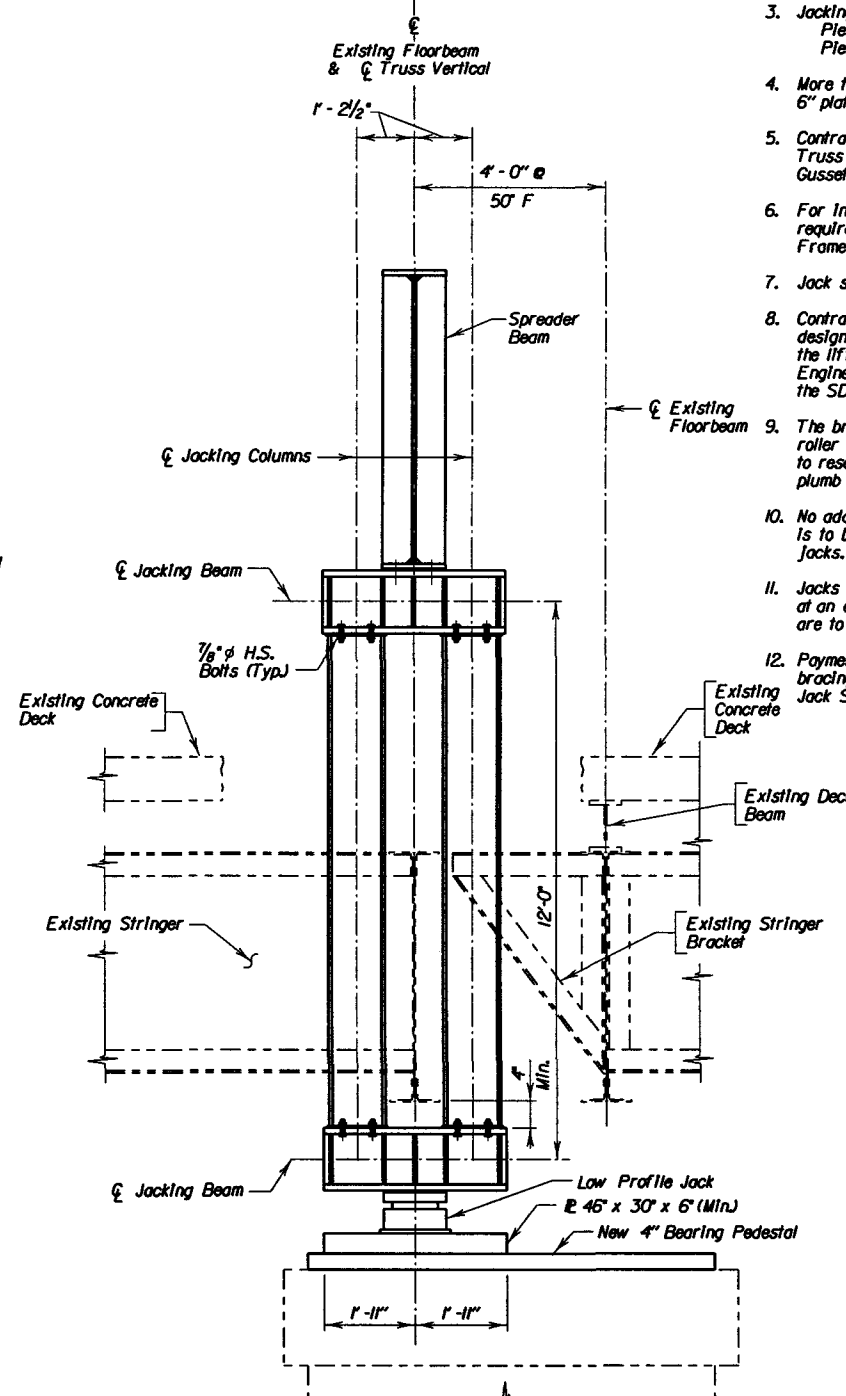
- For Bearing Replacement or resetting locations requiring jacking, see Sheet Nos. 10 Thru 13 of 53.
- For Bearing Details see Sheet No. 26 of 53.
- Jacking Dead Load (Per Jack):
Pier 6 - 420 k
Piers 7, 9 - 13 - 620 k
- More than one masonry plate may be used to achieve the minimum 6" plate thickness.
- Contractor shall secure the existing Bearing Pin and Shoe to the Truss prior to Jacking to prevent separation of the Pin from the Truss Gusset Plates.
- For Informational purposes, 21,055 pounds of Structural Steel is required for the Jacking Frame as Detailed. Alternative Jacking Frame Details may be submitted for approval.
- Jack shall be a minimum of 12" diameter.
- Contractor shall design sway bracing for the lifting frame. The design of the lifting frame sway bracing and any modification to the lifting frame shall be signed and sealed by a Professional Engineer licensed in the state of South Dakota and submitted to the SDDOT Office of Bridge Design for approval.
- The bridge jacking is to facilitate the replacement of the nested roller bearings at Pier Numbers 6, 9, 10, 11, 12 & 13 as well as to reset the rocker bearings at Pier Number 7 to a vertically plumb condition.
- No additional loading from personnel, equipment or materials is to be allowed on the truss span when it is supported by the Jacks. The Jack shall be capable of lifting 125% of the dead load.
- Jacks on the same pier are to be raised and lowered simultaneously at an equal rate. When the bridge is in the raised position, the Jacks are to be locked off.
- Payment for design, materials, labor and installation of lifting frame bracing shall be incidental to the contract unit price Lump Sum for Jack Superstructure - Steel Truss Bridge.



SECTION B-B



SECTION SHOWING LIFTING FRAME



SECTION A-A

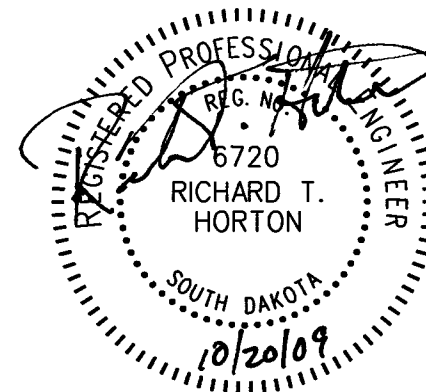
BRIDGE JACKING SEQUENCE

- At the Pier which is to be Jacked, the concrete deck shall be removed at both the upper and lower decks to the limits specified in the "Upper Roadway Expansion Joint Removals" and "Lower Roadway Expansion Joint Removals". Concrete deck removal is not required at the upper deck of Pier 13.
- The pier caps shall be repaired and jacking pedestals constructed according to the "Pier Cap Repair and Jacking Pedestal Details" (Sheet No. 25 of 53) prior to jacking. The repairs shall be approved by the Engineer.
- Install the Lifting Frame and fully tension all connecting bolts.

Place Jacks and the 46" x 30" x 6" bearing plate centered on the web of the jacking beam and the center stiffener of the jacking beam. Verify the plates are bearing equally at all corners and are level. Jack the bridge to a maximum of 1" vertical rise.

Replace bearings or reset the rockers as specified in the "Bearing Replacement and Resetting Notes".

Lower the bridge onto the bearings. Remove the Jacks and lifting frame. Fill the open holes in the truss vertical members with 7/8" diameter H.S. bolts fully tensioned.



LIFTING FRAME FOR BEARING REPLACEMENT FOR

CONVERSION TO PEDESTRIAN BRIDGE OF
423'-6 1/2" CONT. GIRDER SPANS+
1664'-0" DOUBLE DECK TRUSS SPANS+
795'-7 3/8" CONT. GIRDER SPANS BRIDGE
14'-0" (S.B.) 17'-0" (N.B.) ROADWAY 0° SKEW
OVER THE MISSOURI RIVER SEC. 18-T93N-R55W
STR. NO. 68-122-210 EM0081(63)0

YANKTON COUNTY

S. D. DEPT. OF TRANSPORTATION

OCTOBER 2009

(23) OF (53)

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ATN	BKG	RTH

BRIDGE ENGINEER

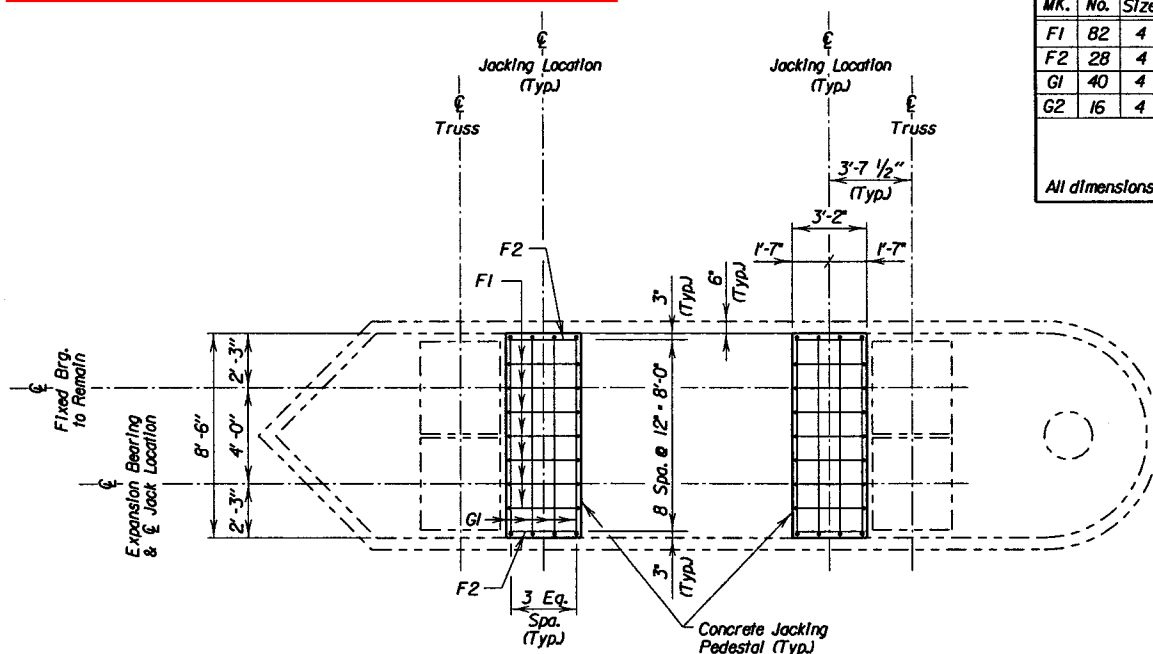
FOR BIDDING PURPOSES ONLY

REINFORCING SCHEDULE

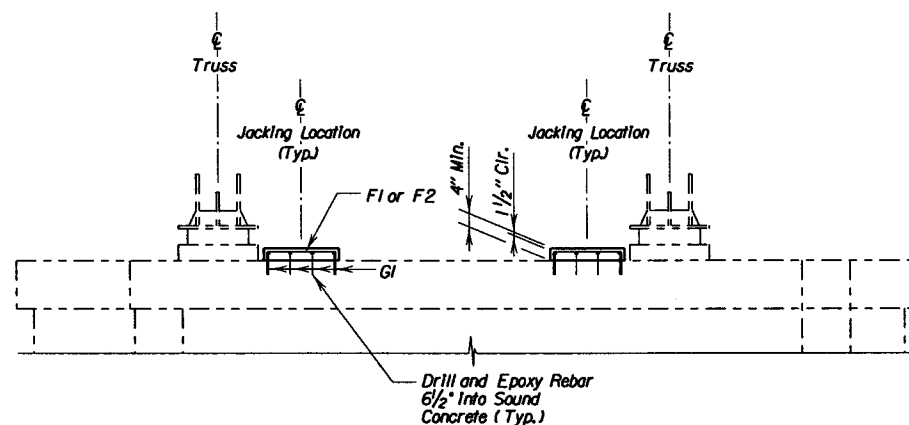
MK.	No.	Size	Length	Type	Bending Details
F1	82	4	4'-4"	1A	<p>2'-10" F1</p> <p>8'-2" G1</p> <p>3'-11" G2</p> <p>d_1</p> <p>Type 1A</p>
F2	28	4	2'-10"	STR	
G1	40	4	9'-8"	1A	
G2	16	4	5'-5"	1A	

All dimensions are out to out of bars.

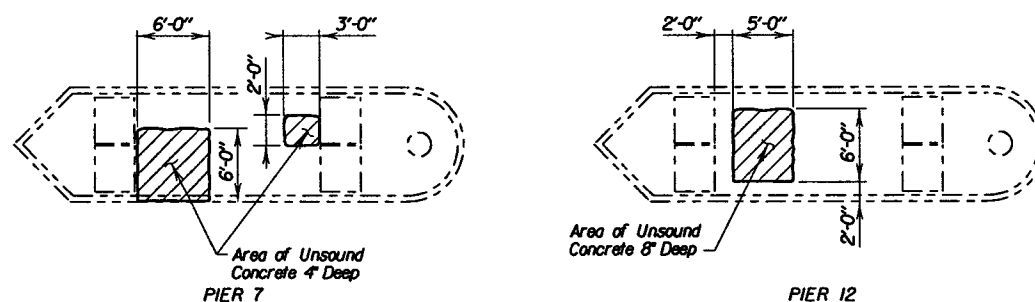
All dimensions are out to out of bars.



**JACKING PEDESTAL PLAN
(PIERS NOS 7, 9, 10, 11, 12)**



**JACKING PEDESTAL ELEVATION
(PIERS NOS. 7, 9, 10, 11, 12)**

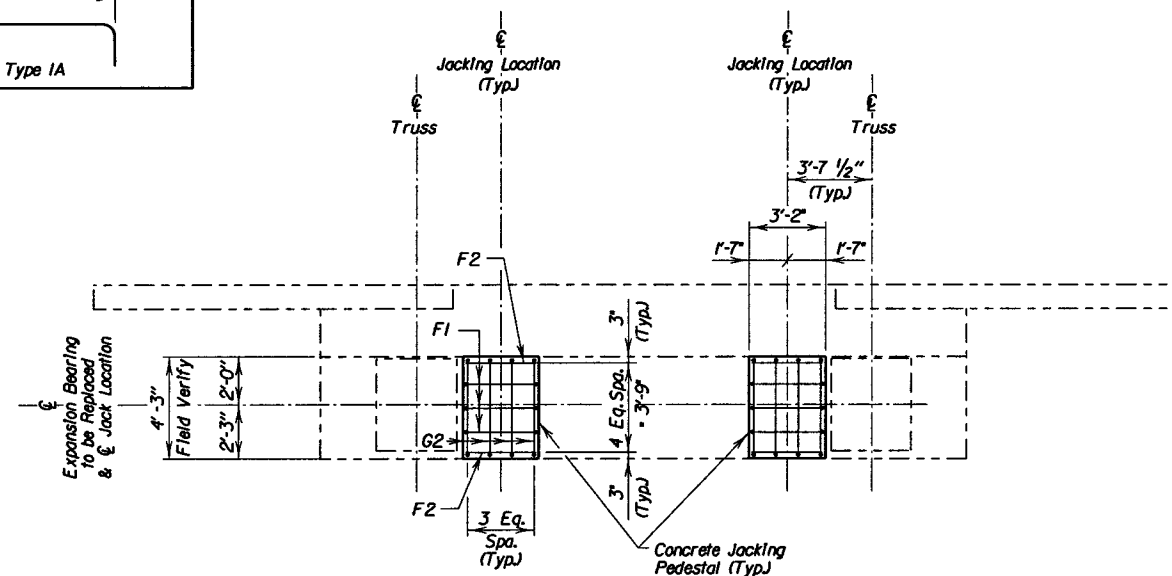


PIER CAP CONCRETE REPAIR

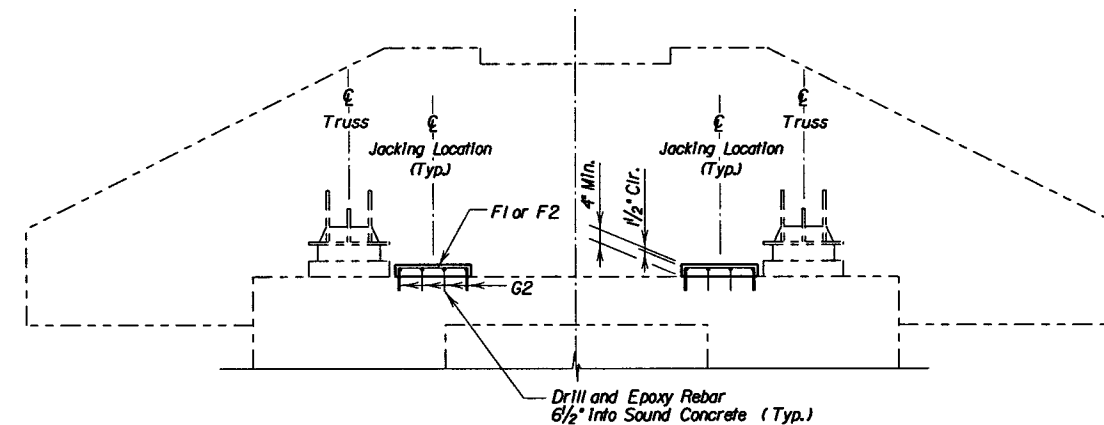
ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
Class A45 Concrete, Bridge Repair	Cu. Yd.	5.3
Reinforcing Steel	Lb.	606
Install Dowel In Concrete	Each	276

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
	EM 0081(63)0		
S.D.		26	54



**JACKING PEDESTAL PLAN
(PIER 6 SHOWN, PIER 13 SIMILAR)**



**JACKING PEDESTAL ELEVATION
(PIER 6 SHOWN, PIER 13 SIMILAR)**

NOTE:
See Sheet No. 4 of 53 for additional
Concrete Pier Cap Repair notes.

PIER CAP REPAIR AND JACKING PEDESTAL DETAILS FOR

CONVERSION TO PEDESTRIAN BRIDGE OF
423'-6 1/2" CONT. GIRDER SPANS+
1664'-0" DOUBLE DECK TRUSS SPANS+
795'-7 3/8" CONT. GIRDER SPANS BRIDGE
14'-0" (S.B.) 17'-0" (N.B.) ROADWAY 0° SKEW
OVER THE MISSOURI RIVER SEC. 18-T93N-R55W
STR. NO. 68-122-210 EM0081(63)0

YANKTON COUNTY

S. D. DEPT. OF TRANSPORTATION

OCTOBER 2009

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-X932-

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DESIGNED BY ATN	DRAWN BY BKG	CHECKED BY RTH
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BRIDGE ENGINEER

Client: 007283 Project: 0000000000066456
Filename: 68122210_025
Year: bgreen
Date Plotted: Thursday, October 15, 2009 12:53:54 PM

Technical drawing showing a side elevation of a truss section with repair specifications:

- Replace Existing Rivets with $\frac{1}{8}" \phi$ H.S. Bolts (Typ)
- Existing Exterior Floor Beam
- Replace Existing 2 - L 5" x 3 1/2" x 3/8" (M1 or M6) In Kind
- Replace Existing 1/2" Gusset PL (G1 or G7) In Kind
- Replace Existing 2 - L 3 1/2" x 3 1/2" x 3/8" In Kind
- Existing Truss Vertical (Member UO-LD shown)
- FIELD VERIFY (vertical dimension)
- FIELD VERIFY (horizontal dimension)
- Truss Existing Bottom Chord
- Top of Bracing

LOWER LATERAL BRACING MEMBER REPLACEMENT TABLE

LOWER LATERAL BRACING GUSSET REPLACEMENT TABLE

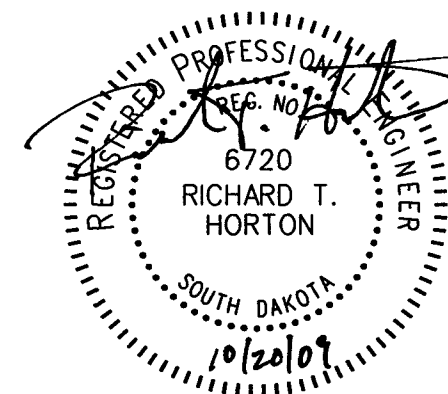
Span	Gusset to be Replaced
7	G0
	G1
	G3
	G5
	G6
8	—
	G0
	G1
	G2
	G5
9	G8
	G9
	—
	G0
	G1
10	G2
	G4
	G5
	G7
	G9
11	—
	G0
	G2
	G4
	G5
12	G7
	G8
	G9
	G0
	G1
13	G2
	G4
	G5
	G6
	G7
14	G8
	G9
	G0
	G1
	G2

1. Details for Lateral Bracing at L1 or L5 Similar to Details of Lateral Bracing at L3 or L6 on Design Sheet 29 of 53. Field verify dimensions and rivet locations.
2. Details for Lateral Bracing at L2, L3 or L4 Similar to Details of Lateral Bracing at L4 or L5 on Design Sheet 29 of 53. Field verify dimensions and rivet locations.
3. Details for Center Gusset at P1 or P6 Similar to Details of Center Gusset at P3 or P7 on Design Sheet 29 of 53. Field verify dimensions and rivet locations.
4. Details for Center Gusset at P2, P3, P4 or P5 Similar to Details of Center Gusset at P4, P5 or P6 on Design Sheet 29 of 53. Field verify dimensions and rivet locations.
5. If a member replacement is called out as "East Side Only" or "West Side Only" and the original member is spliced at the center gusset then only the side of the member indicated need be replaced, at the contractor's option, the outside member may be replaced.
6. All rivets removed during repair shall be replaced with $\frac{7}{8}" \phi$ H.S. bolts.
7. After removal and blast cleaning of each gusset plate the Engineer shall inspect truss and floor beam members at the gusset connection prior to Contractor proceeding with the repair. Any changes made to the connection or connecting members will be measured and paid for at the contract unit price per pound for structural steel.
8. All lateral bracing double angle members shall have $\frac{7}{8}" \phi$ H.S. Bolts connecting the outstanding legs. See Sitch Fastener Detail Sheet No. 29 of 53.
9. For Section A-A, see Design Sheet 29 of 53.
10. Lateral bracing gussets which do not connect to the "Lateral Bracing Load Path" as shown on the "Layout of Lateral Bracing" on Sheet Nos. 27 and 28 of 53 will not be replaced. If, after blast cleaning, a Lateral Bracing Member which was originally connected to one of these gussets is now disconnected from the gusset, that lateral bracing member shall be removed to within 1' of its connection to the stringer. The cost of this removal shall be incidental to the contract unit price bid per pound for Structural Steel.

FOR BIDDING PURPOSES ONLY

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
Structural Steel	lb	45459



LOWER LATERAL BRACING DETAILS
FOR

CONVERSION TO PEDESTRIAN BRIDGE OF
423'-6 $\frac{1}{2}$ " CONT. GIRDER SPANS+
1664'-0" DOUBLE DECK TRUSS SPANS+
795'-7 $\frac{3}{8}$ " CONT. GIRDER SPANS BRIDGE
14'-0" (S.B.) 17'-0" (N.B.) ROADWAY 0° SKEW
OVER THE MISSOURI RIVER SEC. 18-T93N-R55W
STR. NO. 68-122-210 EM0081(63)0

YANKTON COUNTY

S. D. DEPT. OF TRANSPORTATION

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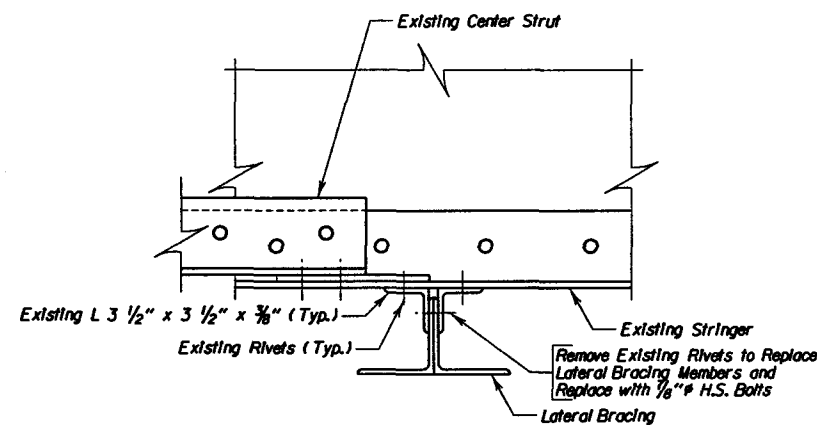
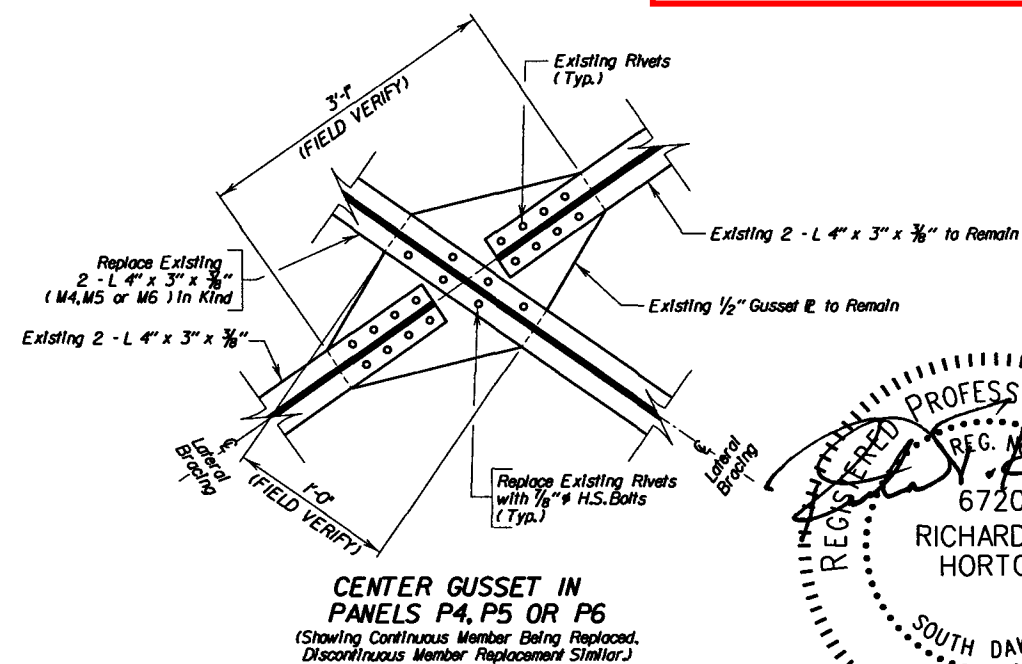
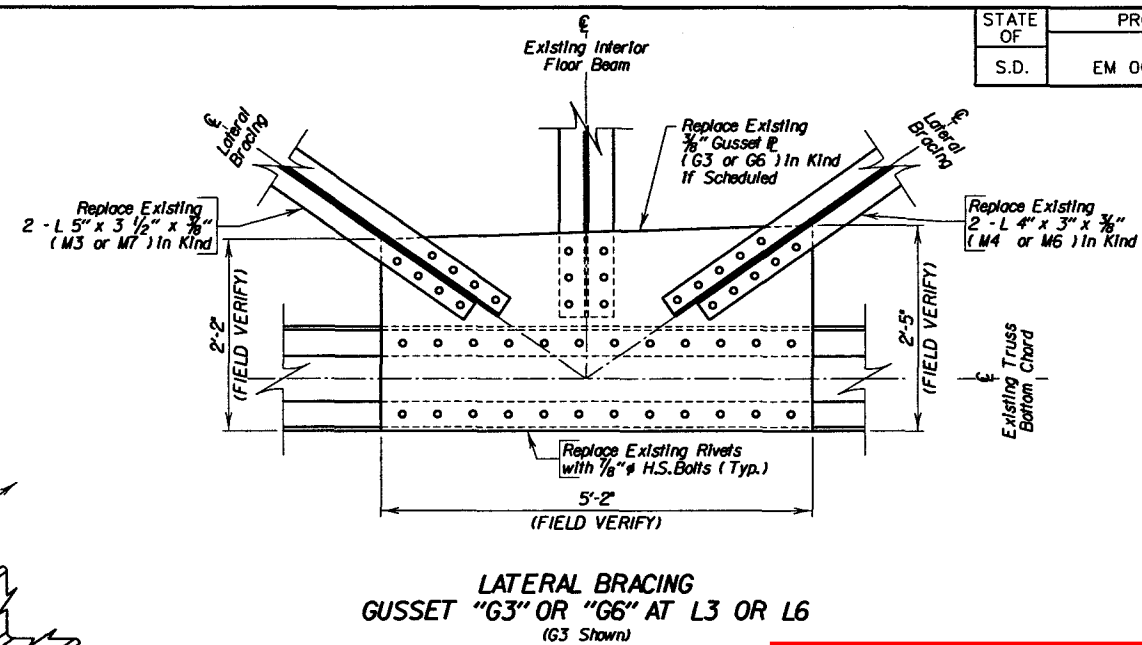
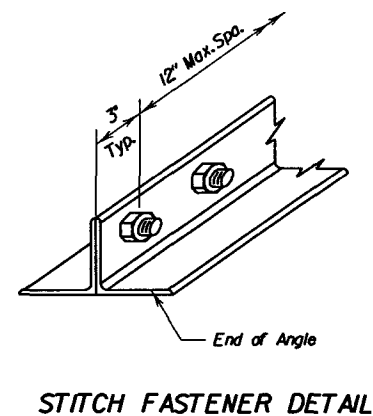
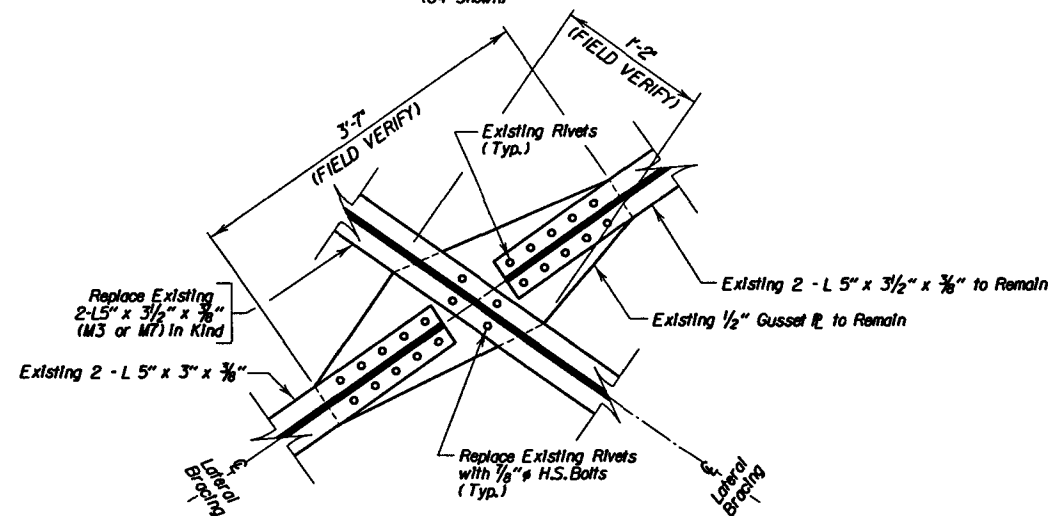
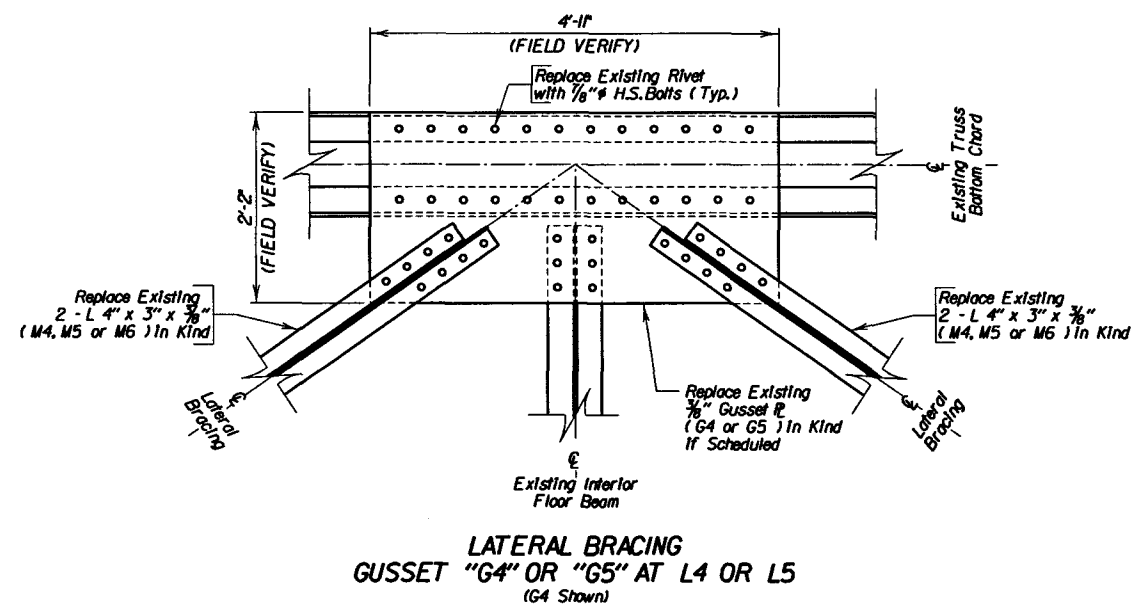
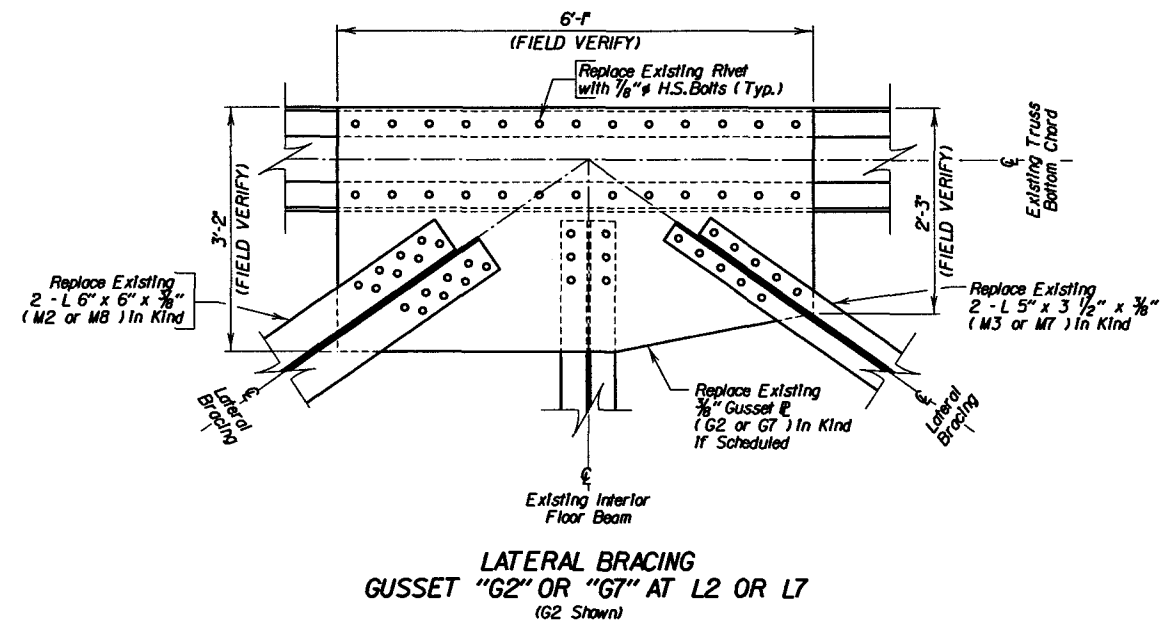
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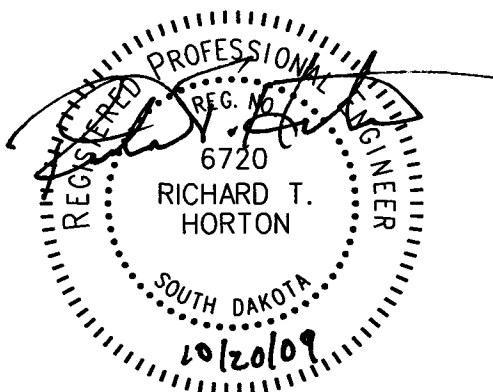
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BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	EM 0081(63)0	30	54



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LOWER LATERAL BRACING DETAILS FOR

CONVERSION TO PEDESTRIAN BRIDGE OF
423'-6 1/2" CONT. GIRDER SPANS+
1664'-0" DOUBLE DECK TRUSS SPANS+
795'-7 3/8" CONT. GIRDER SPANS BRIDGE
14'-0" (S.B.) 17'-0" (N.B.) ROADWAY 0° SKEW
OVER THE MISSOURI RIVER SEC. 18-T93N-R55W
STR. NO. 68-122-210 EM0081(63)0

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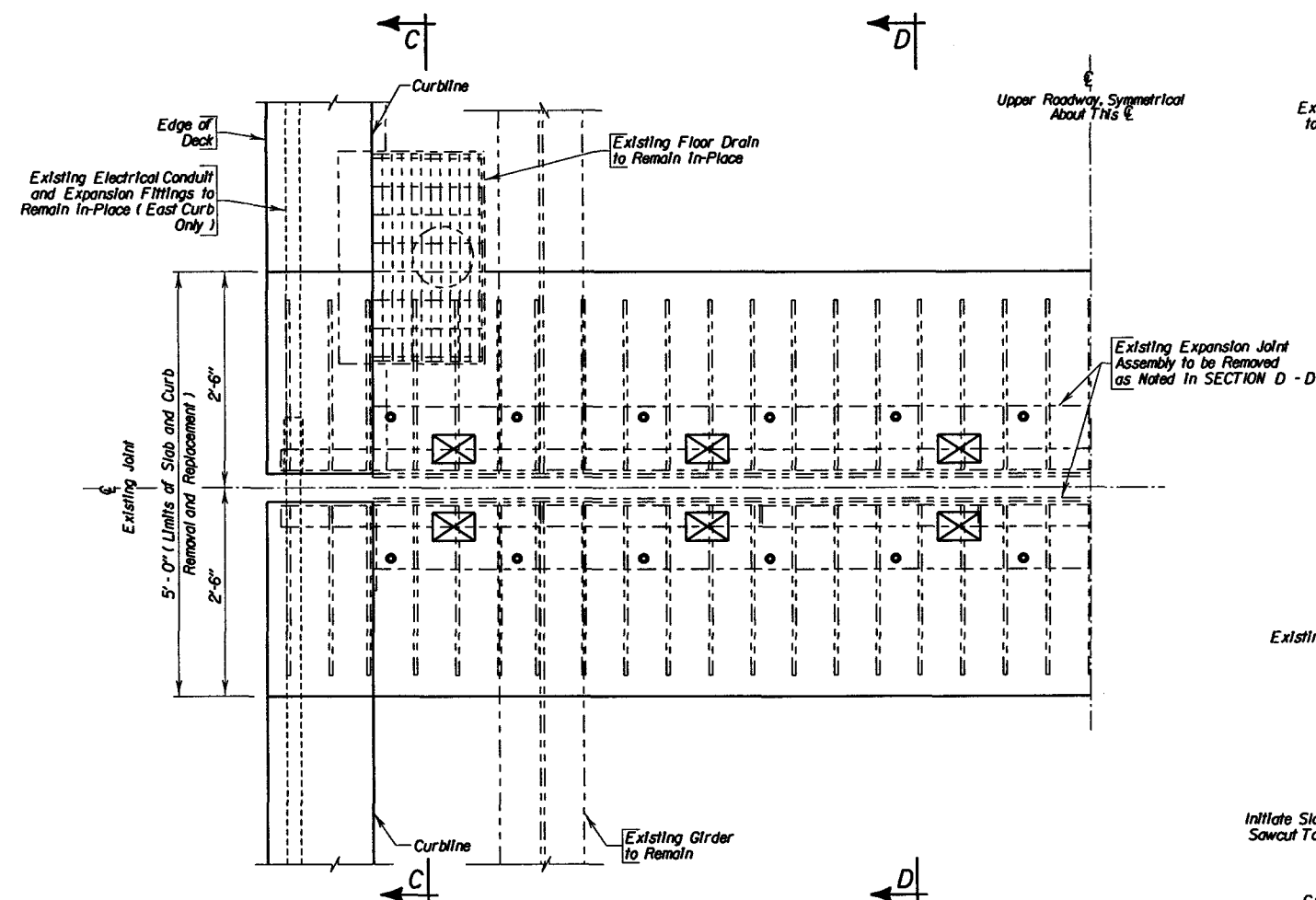
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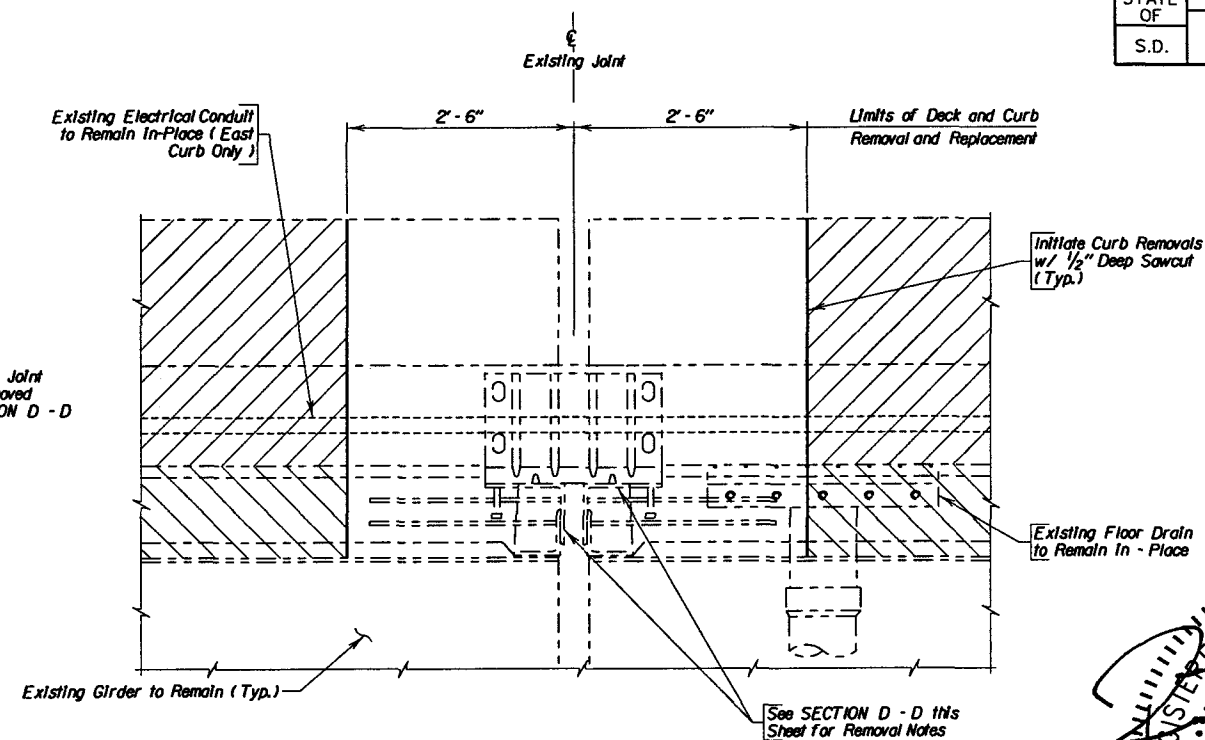
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	RTH

BRIDGE ENGINEER

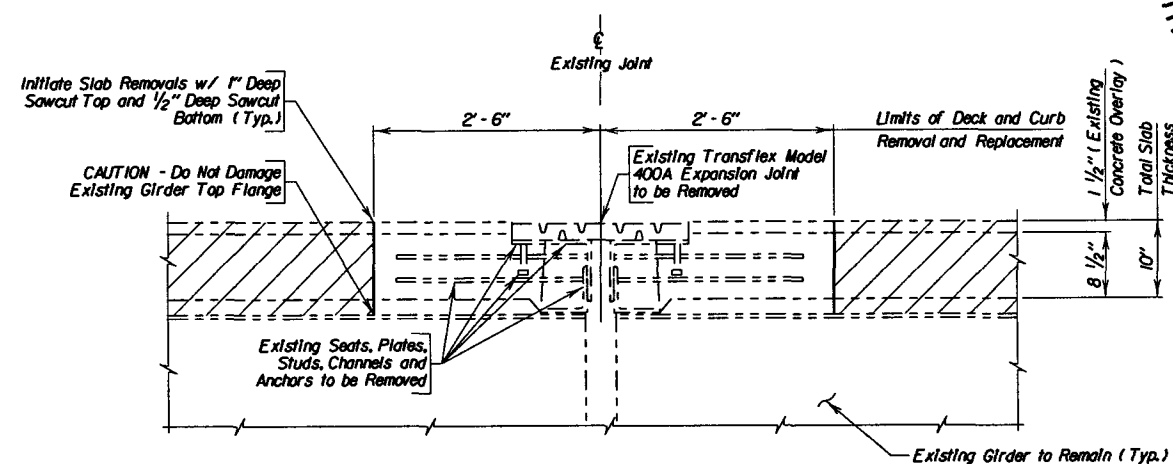
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	EM 0081(63)0	31	54



HALF PLAN OF EXISTING UPPER ROADWAY EXPANSION JOINT -
ABUTMENT NOS. 1 & 2; PIER NOS. 3, 6, 16, 18 & 22
(NOTE: Abutment Locations not Shown, Span 7 Truss not Shown)

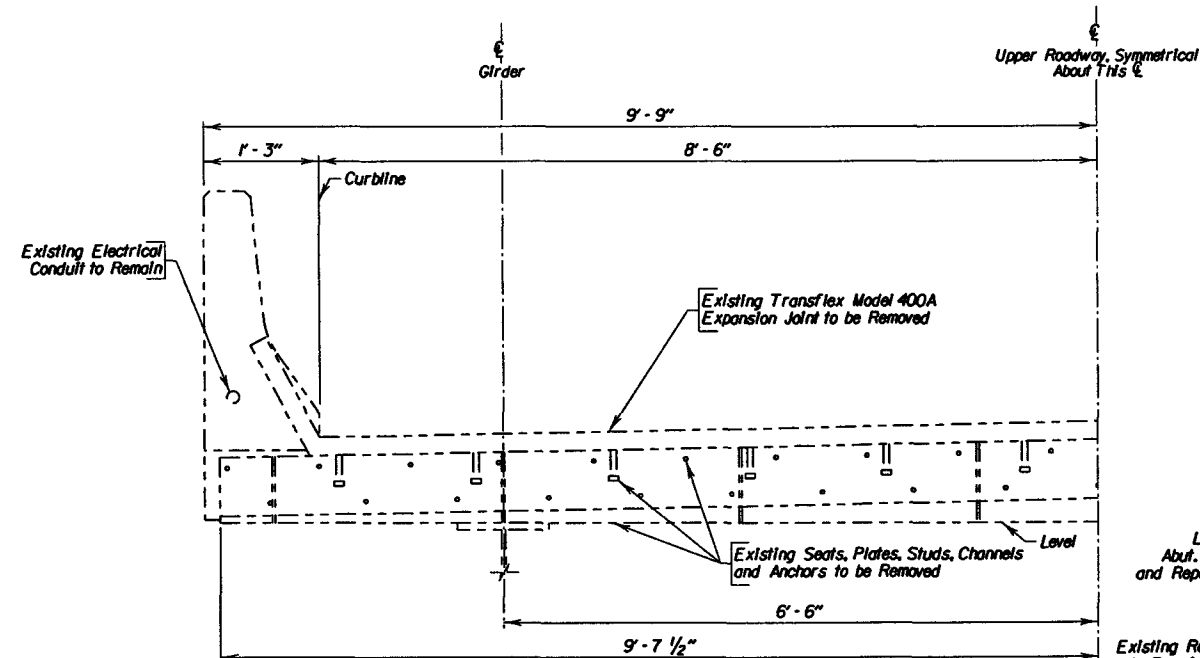


SEC. C - C

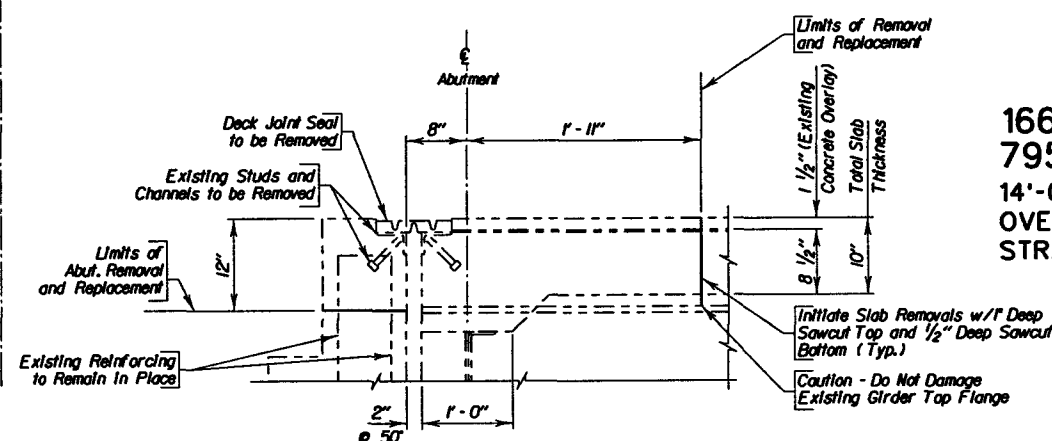


SEC. D - D

FOR BIDDING PURPOSES ONLY



**ELEVATION OF EXISTING UPPER ROADWAY EXPANSION JOINT -
ABUT. NOS. 1 & 2; PIER NOS. 3, 6, 16, 18 & 22**



EXISTING UPPER ROADWAY EXPANSION JOINT AT ABUTMENTS
(ABUT. NO. 1 SHOWN, ABUT. NO. 2 REVERSE)

UPPER ROADWAY EXPANSION JOINT REMOVALS FOR

CONVERSION TO PEDESTRIAN BRIDGE OF
423'-6 $\frac{1}{2}$ " CONT. GIRDER SPANS+
1664'-0" DOUBLE DECK TRUSS SPANS+
795'-7 $\frac{3}{8}$ " CONT. GIRDER SPANS BRIDGE
14'-0" (S.B.) 17'-0" (N.B.) ROADWAY 0° SKEW
OVER THE MISSOURI RIVER SEC. 18-T93N-R55W
STR. NO. 68-122-210 EM0081(63)0

YANKTON COUNTY

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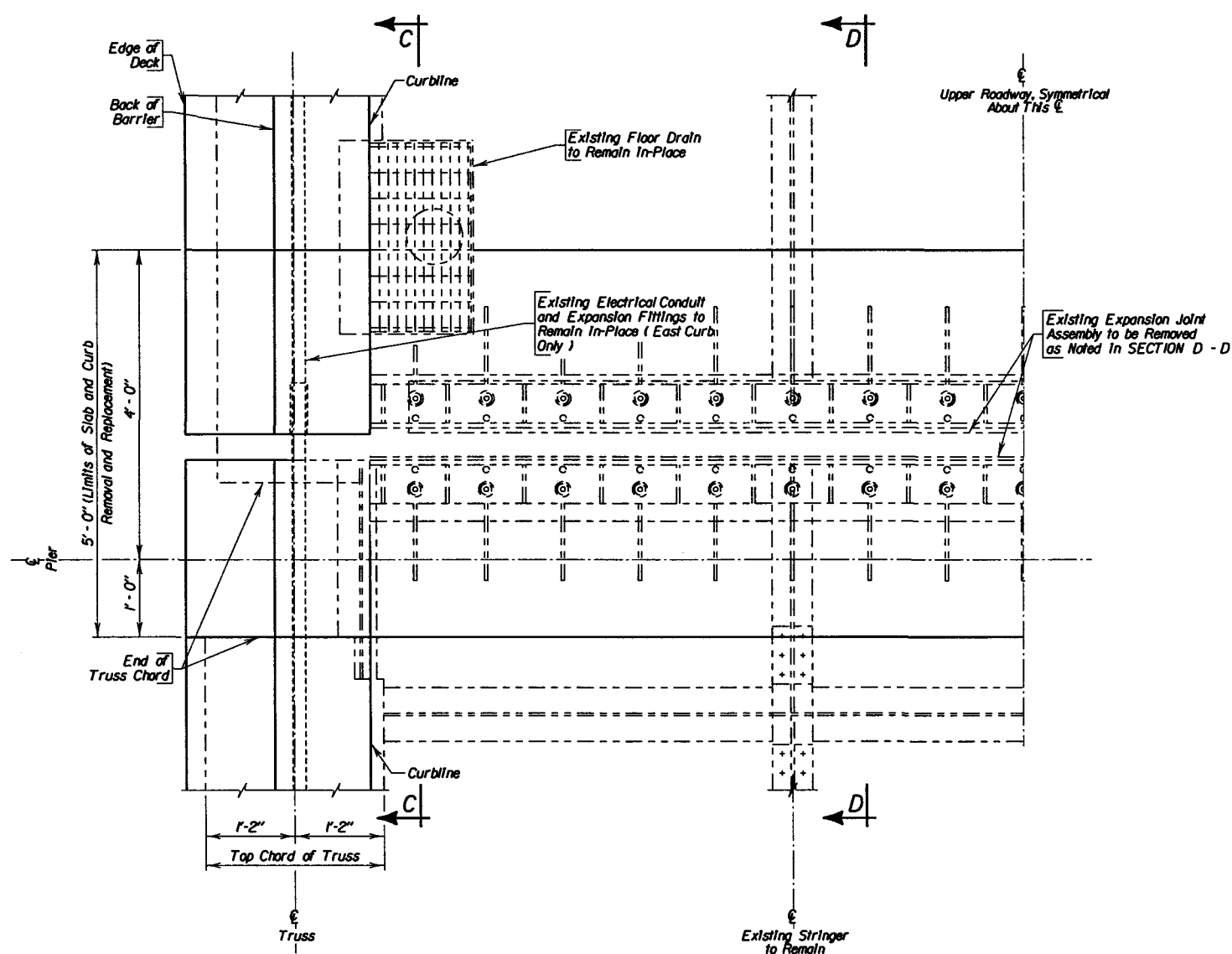
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DESIGNED BY
ATN

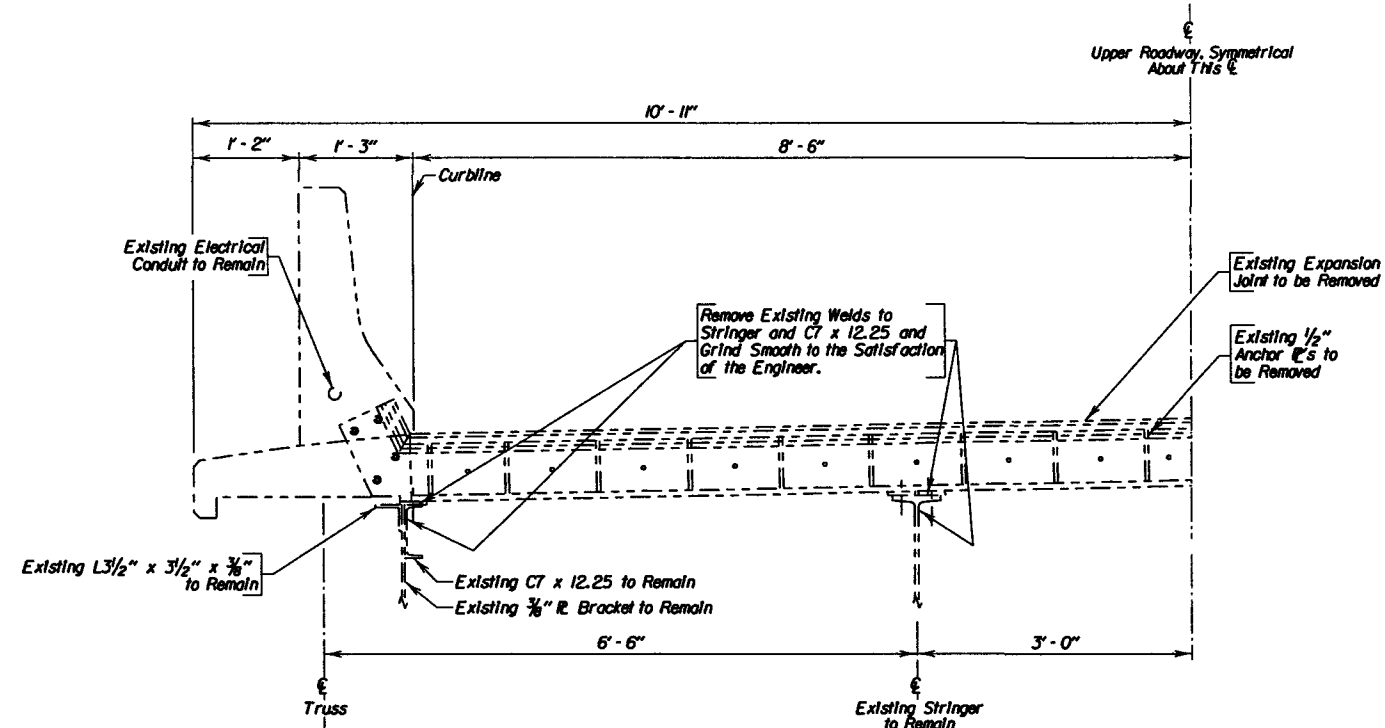
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BRIDGE ENGINEER

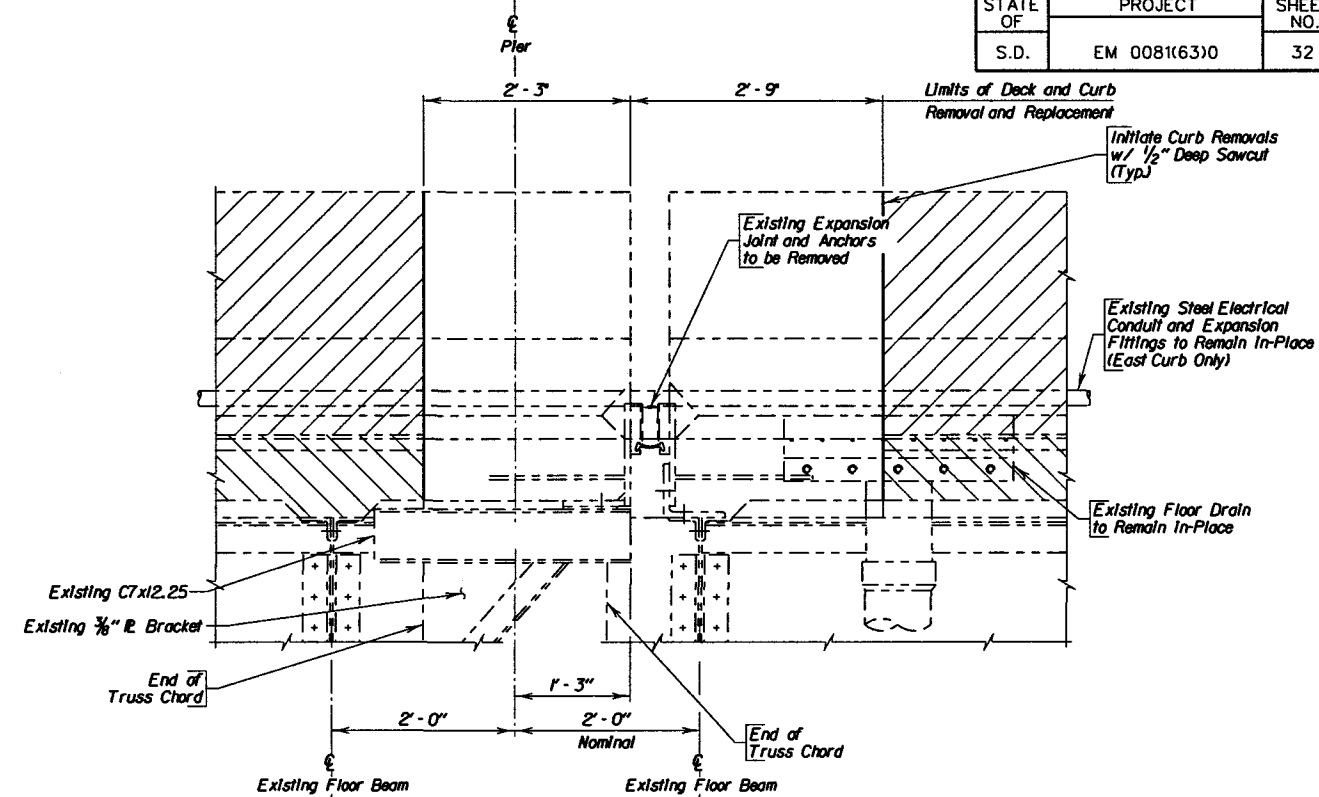
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	EM 0081(63)0	32	54



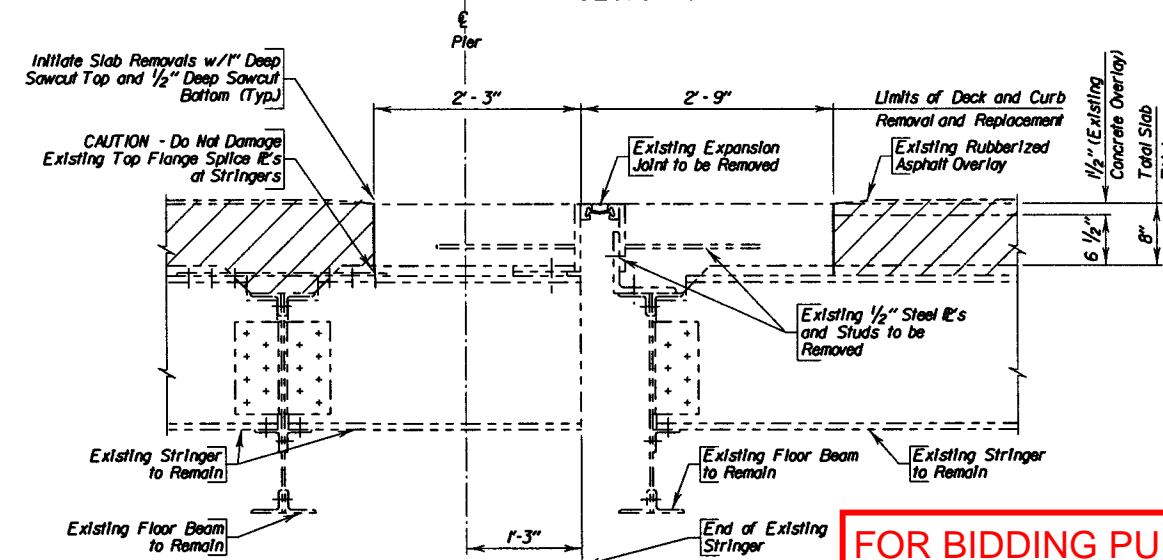
HALF PLAN OF EXISTING UPPER ROADWAY EXPANSION JOINT - PIER NOS.7 THRU 12



ELEVATION OF EXISTING UPPER ROADWAY EXPANSION JOINT - PIER NOS.7 THRU 12



SEC. C - C



FOR BIDDING PURPOSES ONLY

SEC. D - D

UPPER ROADWAY EXPANSION JOINT REMOVALS FOR

CONVERSION TO PEDESTRIAN BRIDGE OF
423'-6 $\frac{1}{2}$ " CONT. GIRDER SPANS+
1664'-0" DOUBLE DECK TRUSS SPANS+
795'-7 $\frac{3}{8}$ " CONT. GIRDER SPANS BRIDGE
14'-0" (S.B.) 17'-0" (N.B.) ROADWAY 0° SKEW
OVER THE MISSOURI RIVER SEC. 18-T93N-R55W
STR. NO. 68-122-210 EM0081(63)0

YANKTON COUNTY

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OCTOBER 2009

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-X932-

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ATN

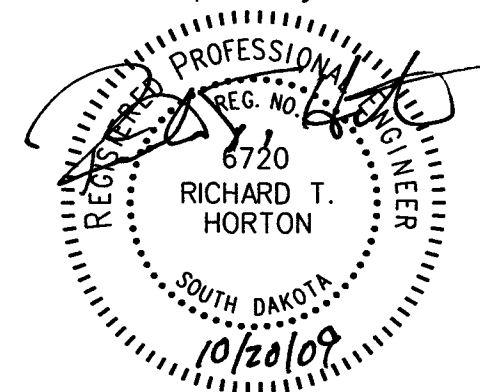
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BRIDGE ENGINEER

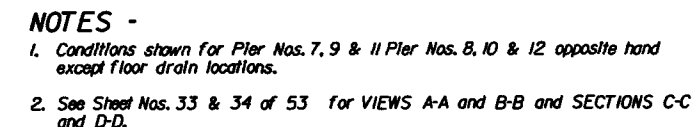
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Filename: 68122210_031
User: bgreen
Date Plotted: Thursday, October 15, 2009 02:58:10 PM

NOTES -

1. Conditions shown for Pler Nos. 7, 9 and 11, Pler Nos. 8, 10 and 12 opposite hand except floor drain locations.
2. Expansion Joints at Piers 9 thru 12 are Strip Seals. Expansion Joints at Piers 7 & 8 are Finger Joints.
3. See lighting details for new conduit expansion fitting locations and details.



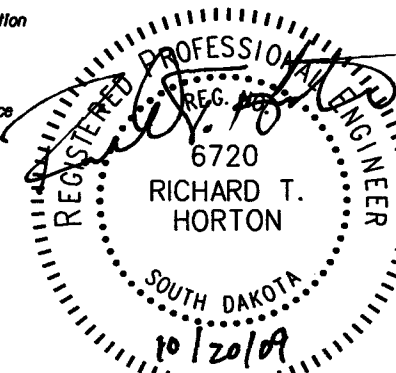
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	EM 0081(63)0	33	54



NOTE -
Abutment Nos. 1 & 2 Similar except Detail "Y" will be cast into the Abutment without the 18" x 8" x $\frac{3}{4}$ " and Detail "X" will be supported on the Existing Girders located 6'-6" from the \odot Upper Roadway. (See Removal Details)
Pier Nos. 3, 6, 16, 18, & 20 similar except attach to girder 6'-6" from \odot Upper Roadway instead of the Existing Strainer. (see Removal Details).

1. Materials for the Steel Extrusion shall conform to ASTM A36, A242 or A588. Material for Structural Plates, Bars and Shims shall conform to ASTM A709, Grade 50. Material less than 1/4 Inch in thickness may be ASTM Grade 50. The 1/2 Inch diameter end-welded deformed bar anchors shall be commercially available Fluxed Deformed Bar Anchor Stud, automatically end-welded, with material conforming to ASTM A496.
2. Material for the neoprene seal shall conform to ASTM D2628 modified to omit the recovery test. No splices will be permitted in the neoprene seal.
3. The lubricant-adhesive used to install the neoprene seal shall conform to the requirements of ASTM D4070. The neoprene seal and the lubricant adhesive should be supplied or recommended by the same source as they must be compatible.
4. The Installation of the neoprene seal shall be as recommended by its Manufacturer and approved by the Engineer, but in general shall be as follows: The neoprene seal shall be installed and bonded to the steel extrusion with a high-solids lubricant adhesive. The neoprene surfaces shall be roughened with a wire brush before the application of the lubricant adhesive. The neoprene seal may be installed either prior to or after the time the steel extrusions are concreted in the bridge slabs. The steel extrusion shall be dry, clean, free from dirt, grease and contaminants at the time the neoprene seal is installed.
5. The thickness and shape of the neoprene seal may vary from the sketch shown (Detail "C" on this sheet) according to the manufacturer's design; however, the wedge lugs must properly fit the groove in the steel extrusion. Before installation, the shop plans of the proposed neoprene seal showing the fixed dimensions, thickness of neoprene seal, and dimensions pertinent to the fit of the neoprene seal in the steel extrusion shall be submitted to and approved by the Engineer.

6. Since the configuration and dimensions of the steel extrusion may vary according to each manufacturer's design, they need not conform exactly to that shown in Detail "D", however, any deviations from the plan shown configuration or dimensions must be approved by the Office of Bridge Design.
7. The Strip Seal Expansion Joint supplier shall submit a detailed gland installation procedure with the shop plans.
8. All steel members are to be galvanized after welding is completed.
9. The cost of welding and galvanizing shall be incidental to the contract unit price each for Replace Expansion Device.
10. Payment for Replace Expansion Device shall be full compensation for furnishing all the required materials in place including all structural steel, bolts, nuts, washers, extrusions, and neoprene seals, inclusive of labor, equipment and incidentals necessary to complete the work in accordance with plans and the foregoing specifications.
- REGISTERED PROFESSIONAL
REG. NO.
6720
RICHARD T.
HORTON



UPPER ROADWAY EXPANSION JOINT DETAILS
FOR
CONVERSION TO PEDESTRIAN BRIDGE OF
423'-6 $\frac{1}{2}$ " CONT. GIRDER SPANS+
1664'-0" DOUBLE DECK TRUSS SPANS+
795'-7 $\frac{3}{8}$ " CONT. GIRDER SPANS BRIDGE
14'-0" (S.B.) 17'-0" (N.B.) ROADWAY 0° SKEW
OVER THE MISSOURI RIVER SEC. 18-T93N-R55W
STR. NO. 68-122-210 EM0081(63)0

YANKTON COUNTY
DEPT. OF TRANSPORTATION
OCTOBER 2009

-X932-

HDX

DESIGNED BY ATN	DRAWN BY ACB	CHECKED BY RTH
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32 OF 53

BRIDGE ENGINEER



NOTES -
See lighting details for new conduit expansion
fitting location and details.



CONVERSION TO PEDESTRIAN BRIDGE OF
423'-6 $\frac{1}{2}$ " CONT. GIRDER SPANS+
1664'-0" DOUBLE DECK TRUSS SPANS+
795'-7 $\frac{3}{8}$ " CONT. GIRDER SPANS BRIDGE
14'-0" (S.B.) 17'-0" (N.B.) ROADWAY 0° SKEW
OVER THE MISSOURI RIVER SEC. 18-T93N-R55W
STR. NO. 68-122-210 EM0081(63)0

OCTOBER 2009

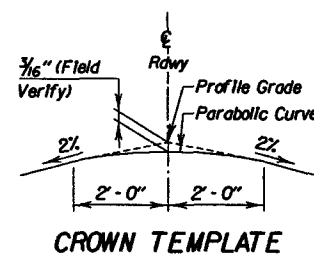
33 OF 53

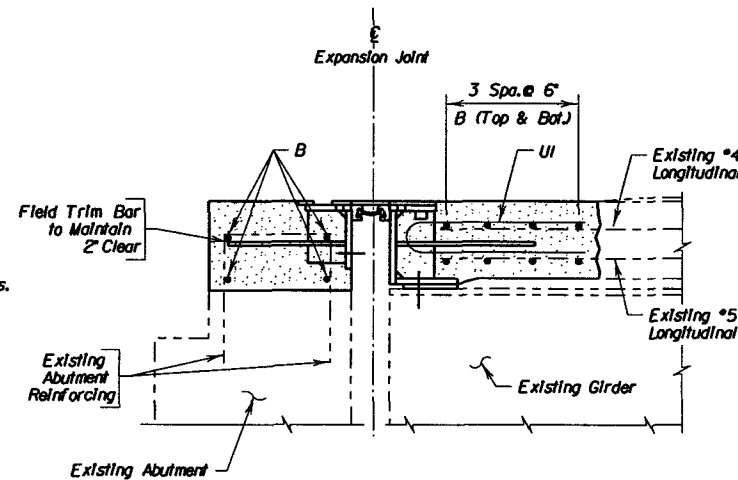
-X932-

DESIGNED BY ATN	DRAWN BY BKG	CHECKED BY RTH
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BRIDGE ENGINEER

Temp.	Dimension "d"						
	Abut. No. 1	Pier No. 3	Pier No. 6	Pier No. 16	Pier No. 18	Pier No. 22	Abut. No.
30°	2 7/16"	2 3/4"	2 5/8"	3 11/16"	2 3/4"	2 7/8"	2 7/16"
40°	2 3/4"	2 3/8"	2 1/2"	3 3/8"	2 9/16"	2 3/8"	2 3/16"
50°	2 1/4"	2 3/8"	2 5/16"	3 1/8"	2 3/8"	2 7/16"	2 1/4"
60°	2 1/8"	2 3/16"	2 3/16"	2 13/16"	2 3/16"	2 3/16"	2 1/8"
70°	2"	2"	2"	2 1/2"	2"	2"	2"
80°	1 7/8"	1 3/16"	1 3/16"	2 3/16"	1 13/16"	1 3/16"	1 7/8"
90°	1 3/4"	1 1/4"	1 1/4"	1 1/4"	1 5/8"	1 1/4"	1 3/4"





SEC. E - E
(AT ABUTMENT NOS. 1 & 2)

REINFORCING SCHEDULE

Mk.	No.	Size	Length	Type
B	200	6	19' - 2"	Str.
C1	208	5	3' - 11"	19B
C2	208	4	3' - 10"	16A
C3	208	4	5' - 2"	11A
U1	432	4	3' - 10"	11I
U2	96	4	4' - 6"	11A

*U2 Present only In Truss Spans

Type 19B

Type 16A

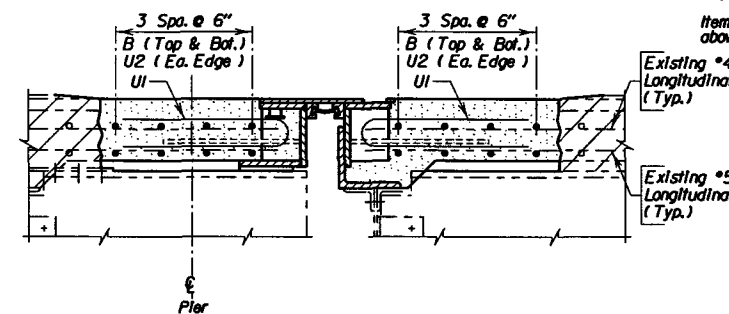
Type 11I

Type 11A

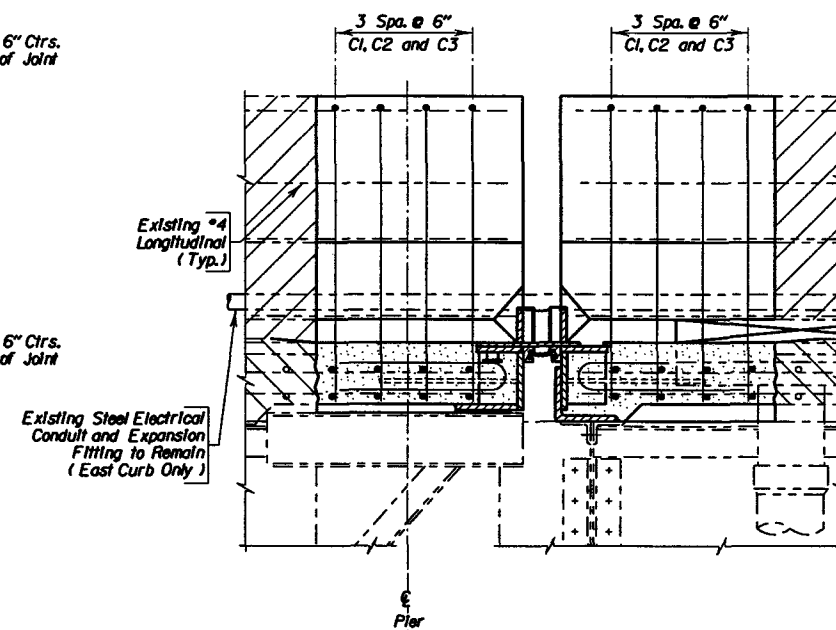
ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Replace Expansion Device	Each	13

1. 482 Cu.Yd.Concrete In Expansion Devices.
2. 9,254 Lb.Reinforcing Steel In Expansion Devices.
3. 482 Cu.Yd.Concrete to be removed In Expansion Devices.
4. 2329 Ft.Strip Seal In Expansion Devices.
5. 37,617 Lb.Structural Steel In Expansion Devices.

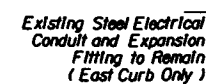
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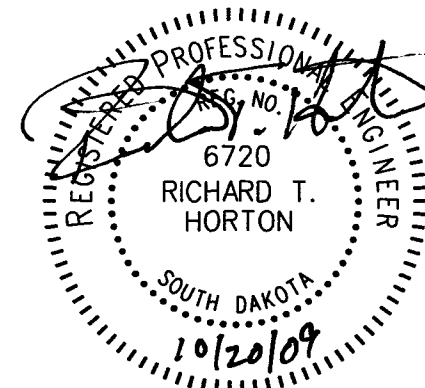
SEC. E - E
(PIER NOS. 7 THRU 12 SHOWN, OTHER LOCATIONS SIMILAR)



SEC. F - F
(PIER NOS. 7 THRU 12 SHOWN, OTHER LOCATIONS SIMILAR)



HALF SECTION OF UPPER ROADWAY REINFORCING AT APPROACH EXPANSION JOINT
(FOR ABUTMENT NOS. 1, 2 AND PIERS NOS. 3, 6, 16, 18, 22)



UPPER ROADWAY EXPANSION JOINT DETAILS FOR

CONVERSION TO PEDESTRIAN BRIDGE OF
423'-6 1/2" CONT. GIRDER SPANS+
1664'-0" DOUBLE DECK TRUSS SPANS+
795'-7 3/8" CONT. GIRDER SPANS BRIDGE
14'-0" (S.B.) 17'-0" (N.B.) ROADWAY 0° SKEW
OVER THE MISSOURI RIVER SEC. 18-T93N-R55W
STR. NO. 68-122-210 EM0081(63)0

YANKTON COUNTY
S. D. DEPT. OF TRANSPORTATION

OCTOBER 2009

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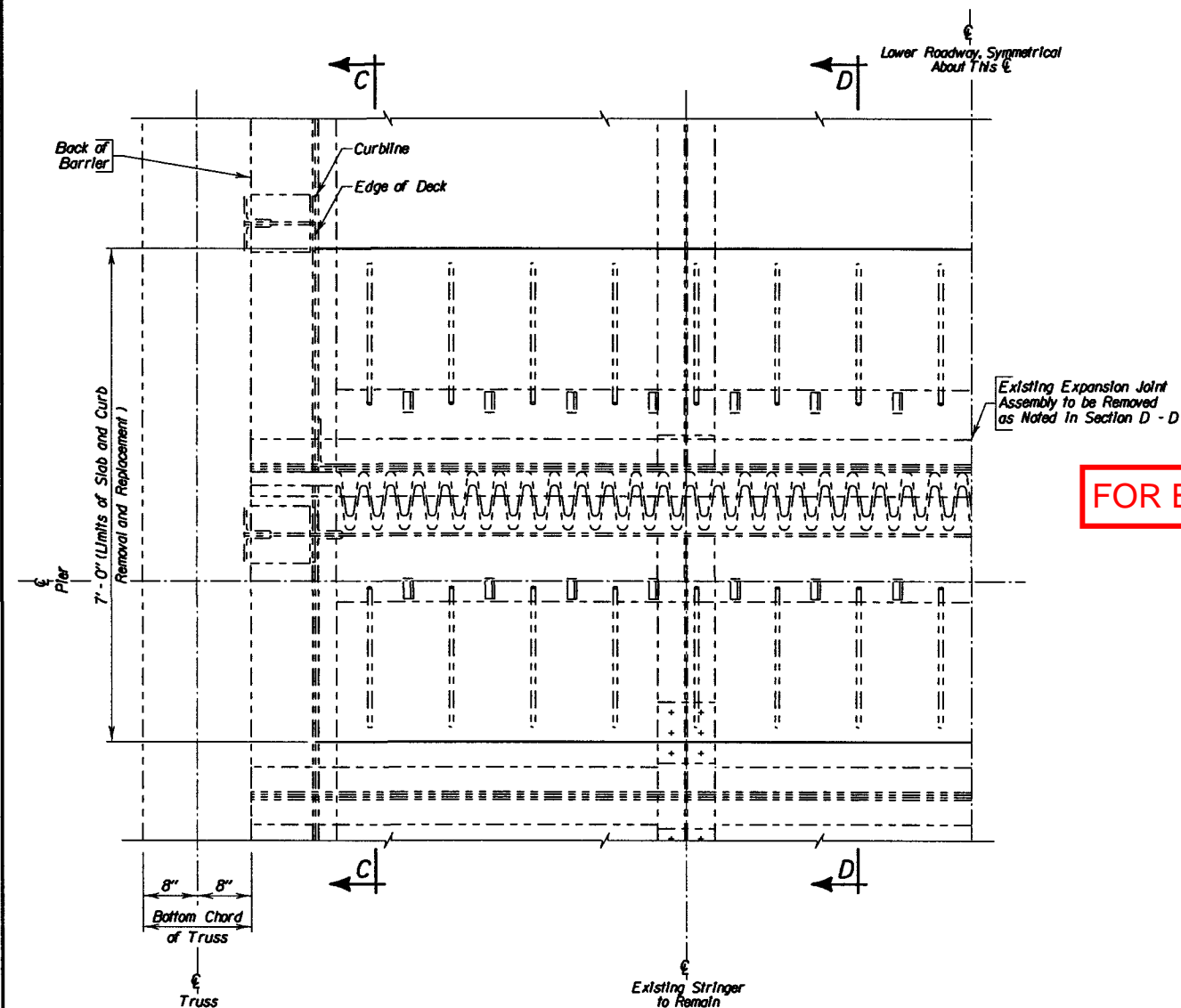
-X932-

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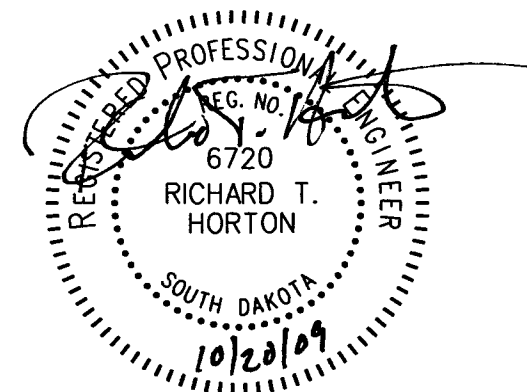
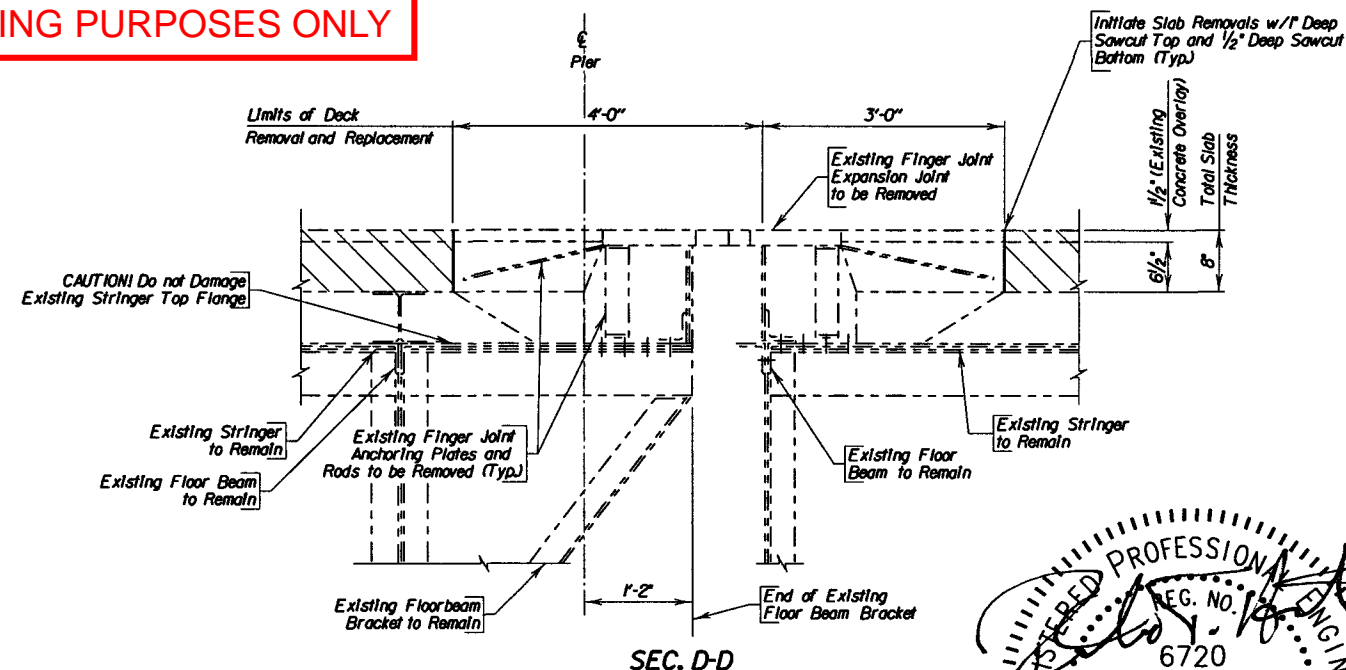
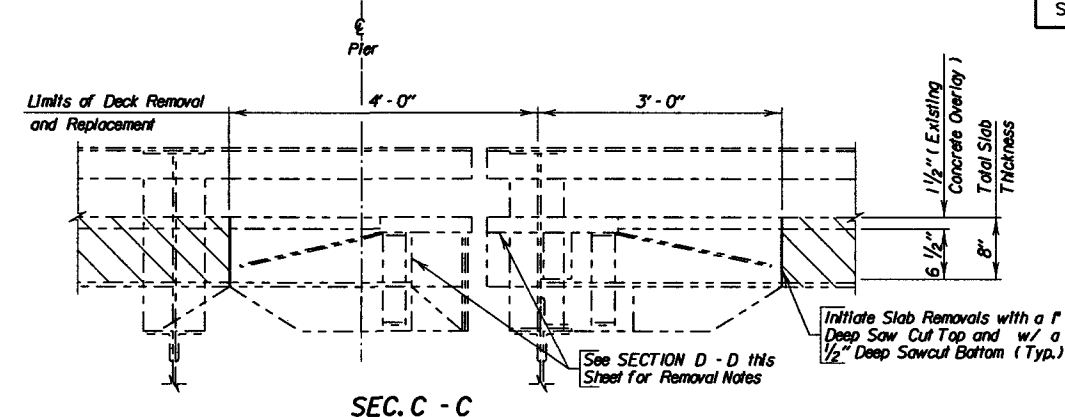
DESIGNED BY ATN	DRAWN BY ACB	CHECKED BY RTH
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BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	EM 0081(63)0	38	54



FOR BIDDING PURPOSES ONLY



LOWER ROADWAY EXPANSION JOINT REMOVALS FOR

CONVERSION TO PEDESTRIAN BRIDGE OF
423'-6 $\frac{1}{2}$ " CONT. GIRDER SPANS+
1664'-0" DOUBLE DECK TRUSS SPANS+
795'-7 $\frac{3}{8}$ " CONT. GIRDER SPANS BRIDGE
14'-0" (S.B.) 17'-0" (N.B.) ROADWAY 0° SKEW
OVER THE MISSOURI RIVER SEC. 18-T93N-R55W
STR. NO. 68-122-210 EM0081(63)0

YANKTON COUNTY

S. D. DEPT. OF TRANSPORTATION

OCTOBER 2009

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-X932-

HDX

DESIGNED BY
ATN

Y	DRAWN BY ACB
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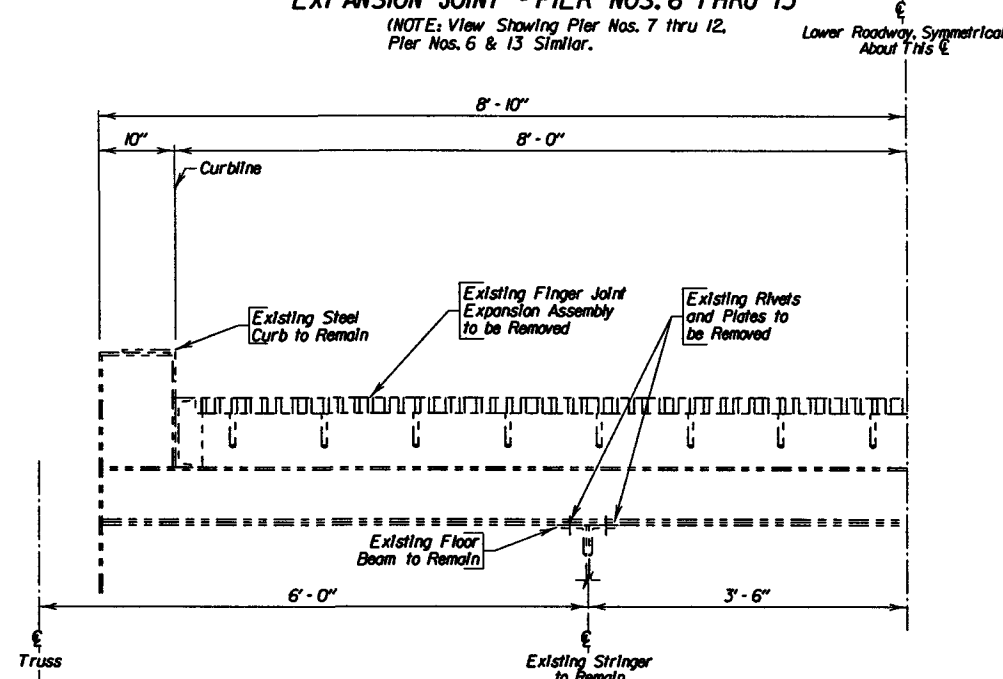
Y	CHECKED BY
	RTH

BRIDGE ENGINEER

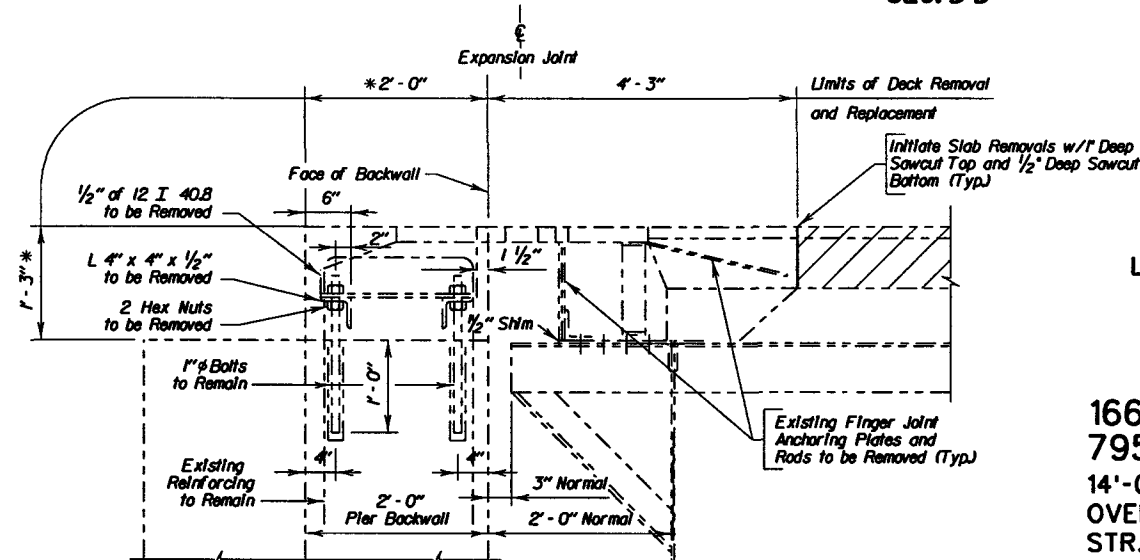
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HALF PLAN OF EXISTING SOUTHBOUND ROADWAY
EXPANSION JOINT - PIER NOS. 6 THRU 13

(NOTE: View Showing Pier Nos. 7 thru 12,
Pier Nos. 6 & 13 Similar.



**ELEVATION OF EXISTING SOUTHBOUND ROADWAY
EXPANSION JOINT - PIER NOS. 6 THRU 13**



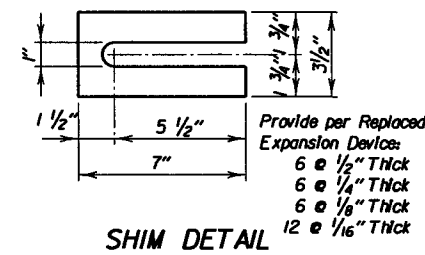
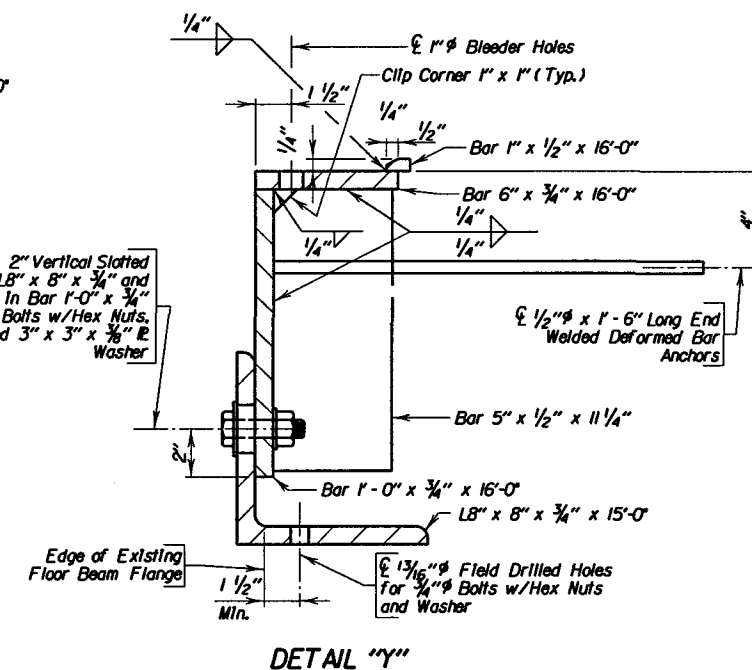
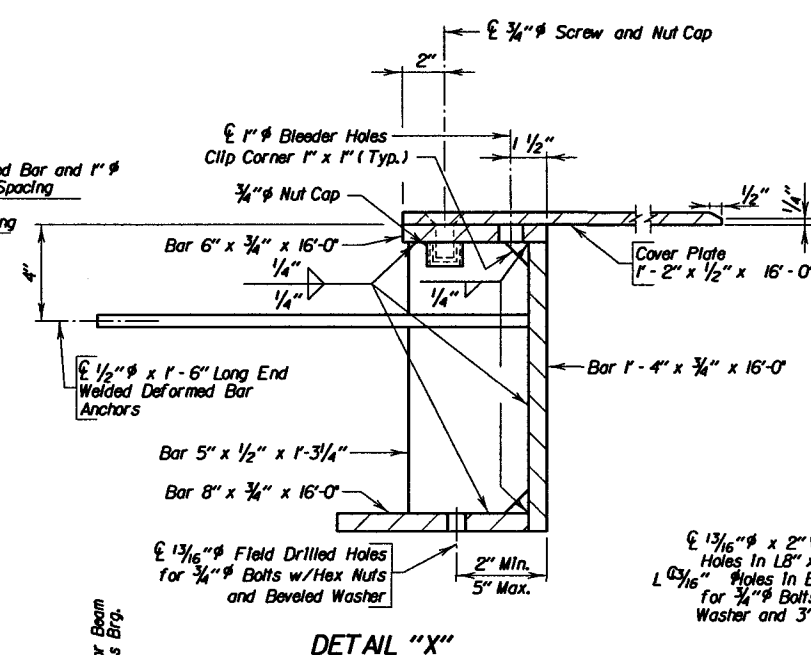
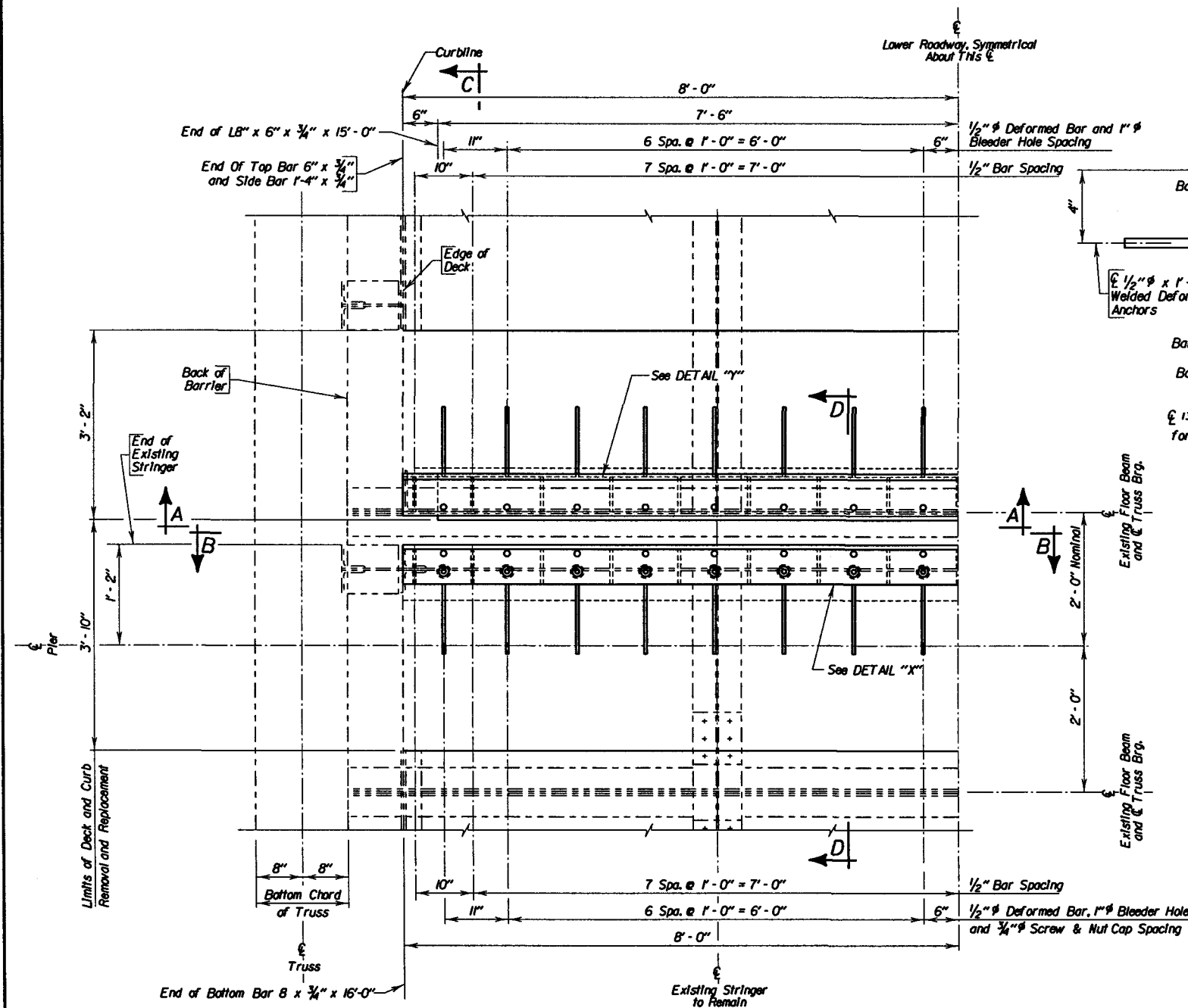
SECTION AT PIER NOS. 6 & 13

* Field Verify Limits of Backwall Removal

NOTE -

Conditions shown for Pier Nos. 7, 9, 11 & 13, Pier Nos. 6, 8, 10 & 12 opposite hand.

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	EM 0081(63)0	39	54



NOTES -

1. Conditions shown for Pler Nos. 7, 9, 11 and 13, Pler Nos. 6, 8, 10 and 12 opposite hand.
2. See Sheet No. 39 of 53 for VIEWS A-A and B-B and SECTION D-D.
3. This Sheet to be used in conjunction with Sheet Nos. 39 and 40 of 53.
4. Material for Structural Plates, Bars and Shims shall conform to ASTM A709, Grade 50. Material less than $\frac{1}{4}$ Inch in thickness may be A1011, Grade 50. The $\frac{1}{2}$ Inch diameter end - welded deformed bar anchors shall be commercially available Fluxed Deformed Bar Anchor Stud, automatically end - welded, with material conforming to ASTM A496.
5. Payment for Structural Plates, Bars, Shims and Deformed Bar Anchors shall be paid for at the contract unit price each for Replace Expansion Devices. This price shall be full compensation for all structural steel bolts, preparation of base metal prior to welding, field welding and material, labor, tools and equipment necessary or incidental to the performance of this work.
6. All Structural Steel Is to be Galvanized after welding Is completed.

HALF PLAN OF LOWER ROADWAY
SLIDING PLATE EXPANSION JOINT - PIER NOS. 6 THRU 13

NOTE: Pier Nos. 7 thru 12 Shown, Pier Nos. 6 & 13 are Similar Except
L 8'-0" x 8'-0" x 1'-0" In Detail "Y" Is not Present.
See Section E-E, on Sheet 40 of 53.

Slab Reinforcement and 1/2" Cover Plate not shown for clarity.

Slab Reinforcement and 1/2" Cover Plate not shown for clarity.

FOR BIDDING PURPOSES ONLY

LOWER ROADWAY EXPANSION JOINT DETAILS FOR

CONVERSION TO PEDESTRIAN BRIDGE OF
423'-6 1/2" CONT. GIRDER SPANS+
1664'-0" DOUBLE DECK TRUSS SPANS+
795'-7 3/8" CONT. GIRDER SPANS BRIDGE
14'-0" (S.B.) 17'-0" (N.B.) ROADWAY 0° SKEW
OVER THE MISSOURI RIVER SEC. 18-T93N-R55W
STR. NO. 68-122-210 EM0081(63)0

YANKTON COUNTY

S. D. DEPT. OF TRANSPORTATION

OCTOBER 2009

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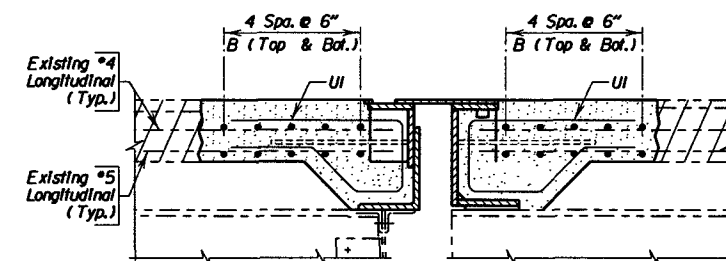
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ATN

DRAWN BY
ACB

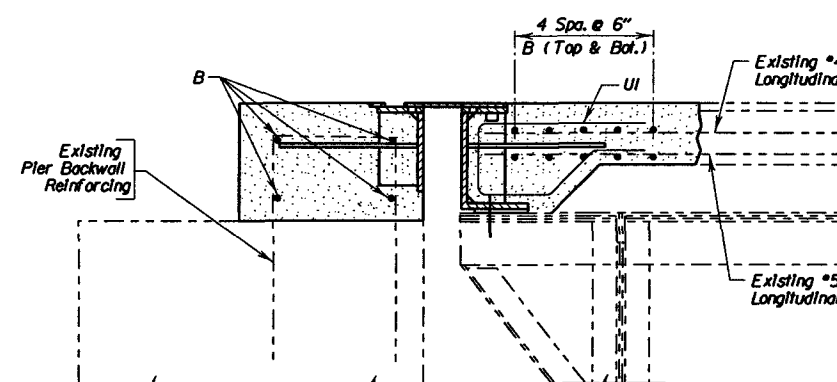
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RTH

BRIDGE ENGINEER

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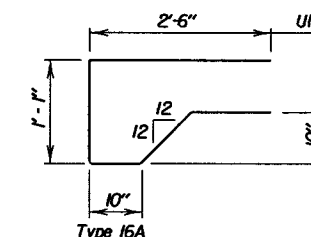
SEC. E - E
(PIER NOS. 7 thru 12)



SEC. E - E
(PIER NOS. 6 & 13)

REINFORCING SCHEDULE

Mk.	No.	Size	Length	Type	Bending Details
B	148	6	15'-8"	Str.	
UI	224	4	6'-6"	16A	

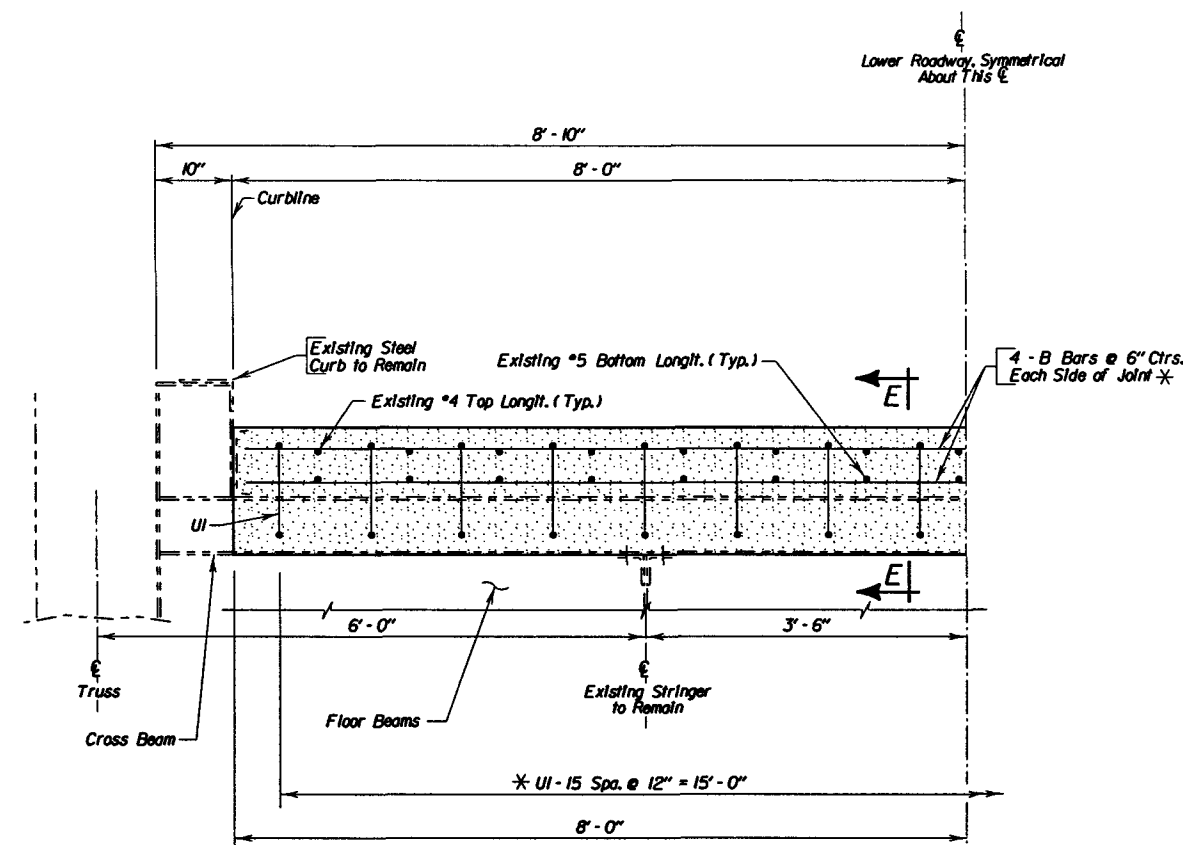


ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
Replace Expansion Device	Each	8

- 33.9 Cu.Yd. Concrete In Expansion Devices.
- 4,456 Lb. Reinforcing Steel In Expansion Devices.
- 33.9 Cu.Yd. Concrete to be removed In Expansion Devices.
- 25,800 Lb. Structural Steel In Expansion Devices.

Items 1 thru 4 are approximate quantities contained in the above bid item and are for information only.

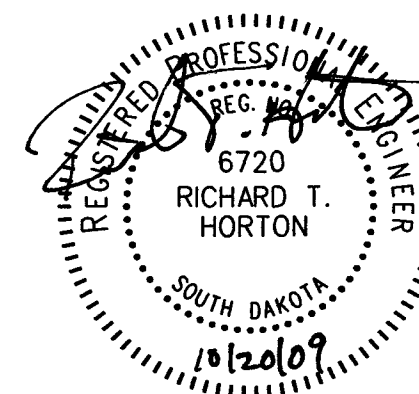


HALF SECTION OF LOWER ROADWAY AT EXPANSION JOINT
* Except at Pier Nos. 6 & 13 Backwalls

FOR BIDDING PURPOSES ONLY

LOWER ROADWAY EXPANSION JOINT DETAILS FOR

CONVERSION TO PEDESTRIAN BRIDGE OF
423'-6 1/2" CONT. GIRDER SPANS+
1664'-0" DOUBLE DECK TRUSS SPANS+
795'-7 3/8" CONT. GIRDER SPANS BRIDGE
14'-0" (S.B.) 17'-0" (N.B.) ROADWAY 0° SKEW
OVER THE MISSOURI RIVER SEC. 18-T93N-R55W
STR. NO. 68-122-210 EM0081(63)0



YANKTON COUNTY

S. D. DEPT. OF TRANSPORTATION

OCTOBER 2009

(40) OF (53)

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HDR

DESIGNED BY ATN	DRAWN BY ACB	CHECKED BY RTH	BRIDGE ENGINEER
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TABLE OF CONDUIT AND CABLE QUANTITIES

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0081(63)0		

[illegible]

TABLE OF CONDUIT AND CABLE QUANTITIES

STATE OF SOUTH
DAKOTA

PROJECT

EM 0081(63)0

SHEET

TOTAL
SHEETS

FOR BIDDING PURPOSES ONLY

[illegible]

[illegible]

CONDUIT LAYOUT

PEDESTRIAN BRIDGE

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0081(63)0	47	54

Plotting Date: 08-OCT-2009

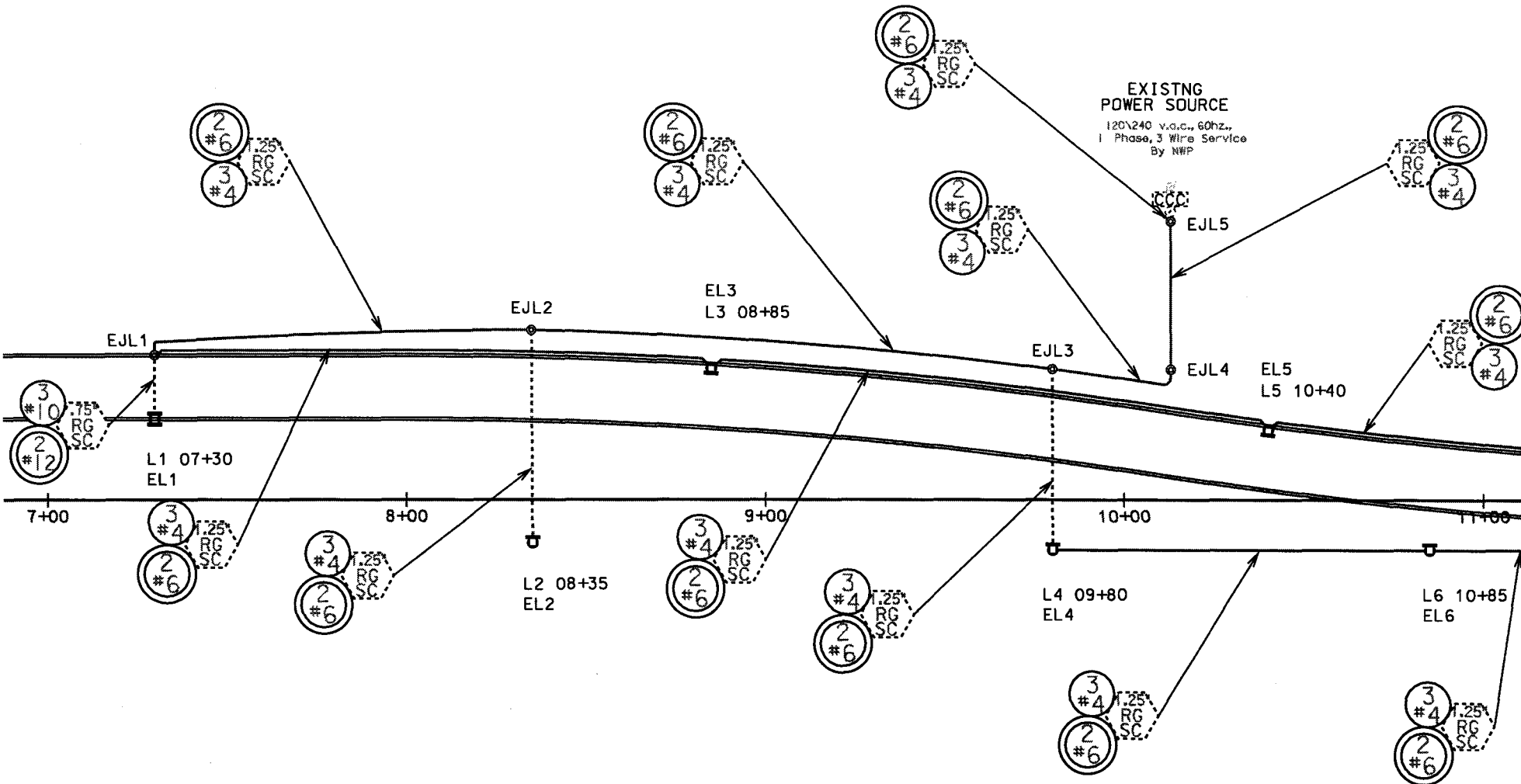


SCALE
1" = 40'

FOR BIDDING PURPOSES ONLY

EXISTING ITEMS	
KEY	ITEM
⚡	POWER POLE
⚡	UTILITY POLE
⊙	TOWER LIGHT (ETL1)
⊙	UNDER BRIDGE DECK LUMINAIRE (EUL1-EUL9)
⊙	JUNCTION BOX (EJL1-EJL8)
CCC	CIRCUIT CONTROL CENTER
RG SC	0.75" RIGID GALVANIZED STEEL CONDUIT
RG SC	1.25" RIGID GALVANIZED STEEL CONDUIT
RG SC	2" RIGID GALVANIZED STEEL CONDUIT
#12	1/C #12 AWG COPPER WIRE

ESTIMATE OF QUANTITIES			
KEY	ITEM	EST QUANT	UNIT
	SALVAGE LUMINAIRE POLE (EL1-EL9 AS L1-L9, EL10-EL36 AS L11-L37)	36	EACH
⚡	DECORATIVE LUMINAIRE POLE (L2-L37)	36	EACH
⚡	DECORATIVE LUMINAIRE POLE W/TWIN ARMS (L1)	1	EACH
⚡	DECORATIVE LUMINAIRE, 400 WATT (L1-L37)	38	EACH
⚡	DECORATIVE LUMINAIRE, 175 WATT (UL1-UL16)	16	EACH
⚡	DECORATIVE LUMINAIRE ARM (UL1-UL16)	16	EACH
⚡	SURFACE MOUNTED JUNCTION BOX (SMJ1-SMJ9)	9	EACH
RG SC	1" RIGID GALVANIZED STEEL CONDUIT	1,060	FT
RG SC	2" RIGID GALVANIZED STEEL CONDUIT	170	FT
#00	1/C #00 AWG COPPER WIRE	7,670	FT
#4	1/C #4 AWG COPPER WIRE	11,635	FT
#10	1/C #10 AWG COPPER WIRE	4,260	FT
	2/C #10 AWG COPPER POLE & BRACKET CABLE	950	FT
#2	INCIDENTAL WORK REMOVE 1/C #2 AWG COPPER WIRE	LUMP SUM	LS
#6	INCIDENTAL WORK REMOVE 1/C #6 AWG COPPER WIRE	LUMP SUM	LS
#10	INCIDENTAL WORK REMOVE 1/C #10 AWG COPPER WIRE	LUMP SUM	LS
#12	INCIDENTAL WORK REMOVE 1/C #12 AWG COPPER WIRE	LUMP SUM	LS



CONDUIT LAYOUT

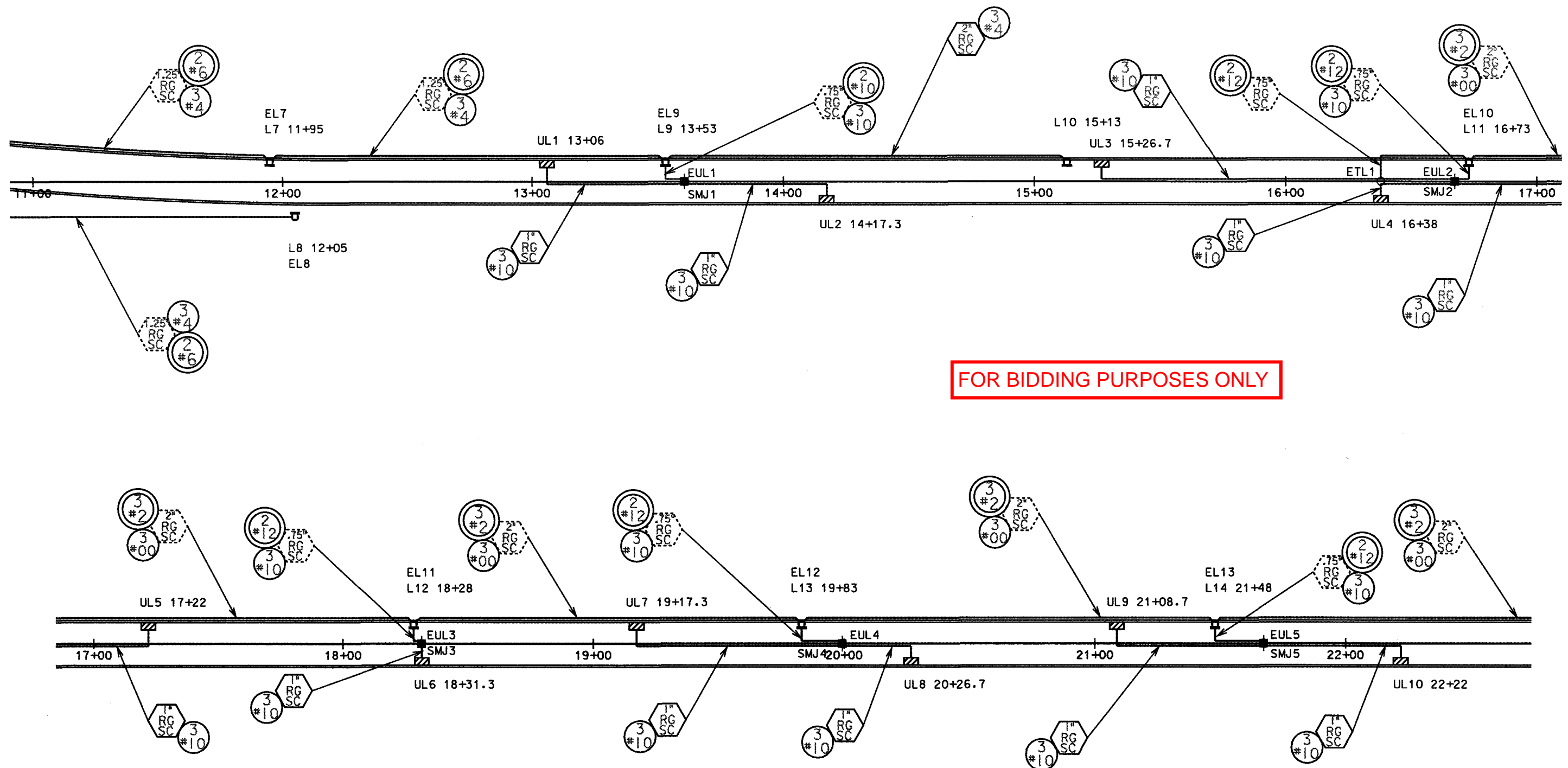
PEDESTRIAN BRIDGE

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0081(63)0	48	54

Plotting Date: 08-OCT-2009



SCALE
1" = 40'



PLOT SCALE - 40.0000001.000000

PLOTTED FROM - TRP12315

PLOT NAME - 5

FILE - U:\RSD\PRJ\YANK\00KN\011C.DGN

CONDUIT LAYOUT

PEDESTRIAN BRIDGE

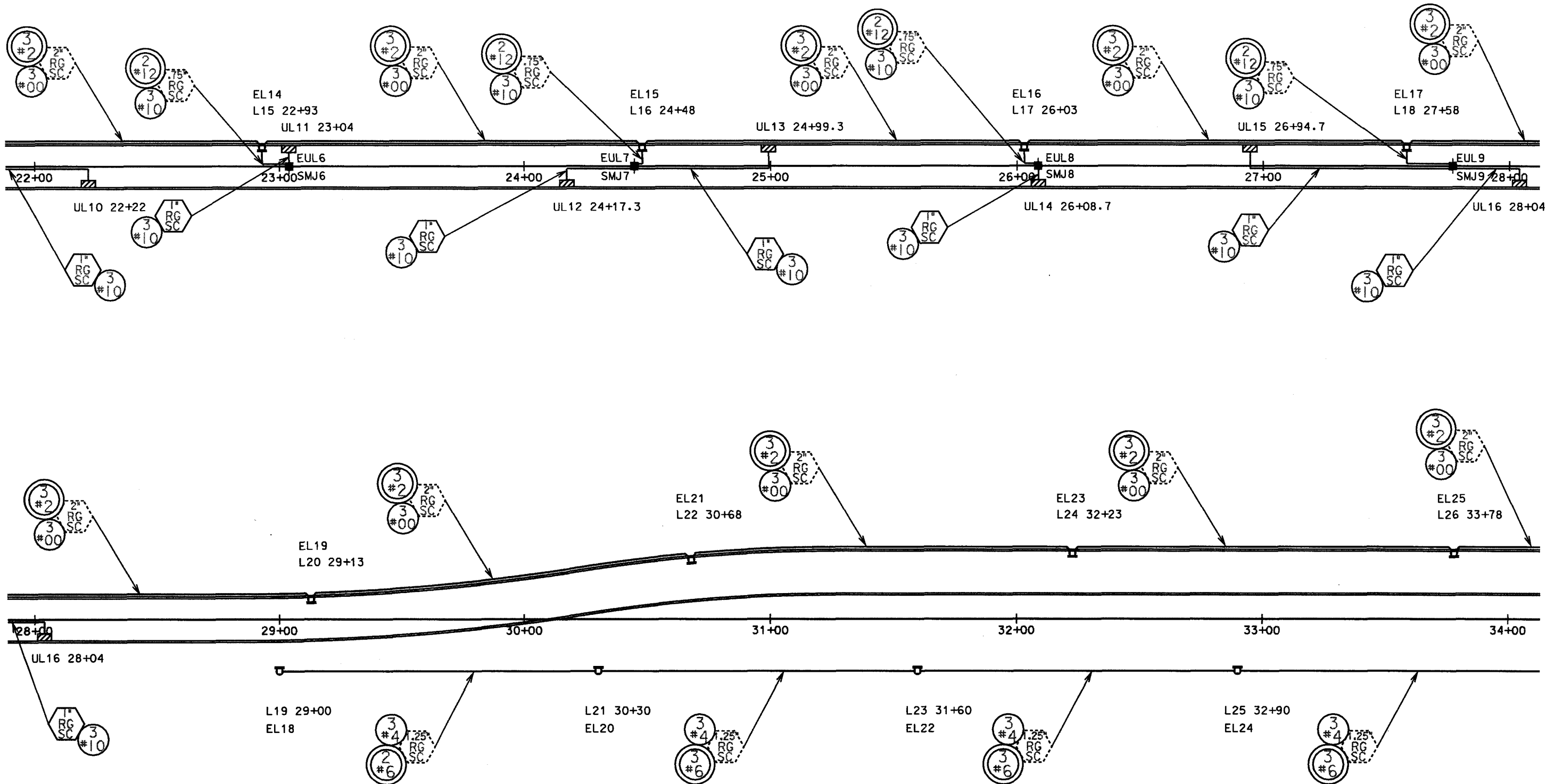
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0081(63)0	49	54

Plotting Date: 08-OCT-2009

FOR BIDDING PURPOSES ONLY



SCALE
1" = 40'



CONDUIT LAYOUT

PEDESTRIAN BRIDGE

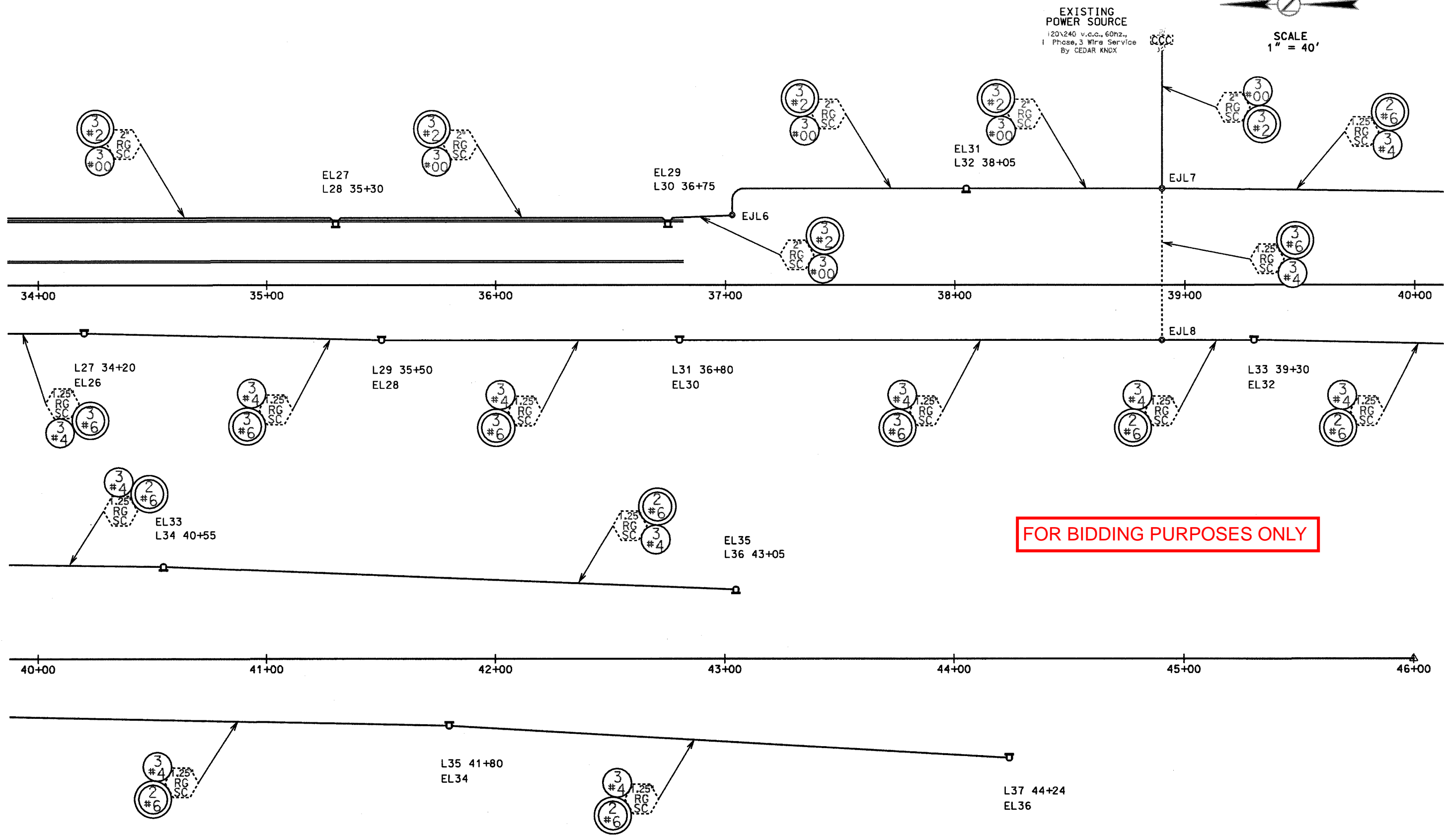
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0081(63)0	50	54

Plotting Date: 08-OCT-2009



SCALE
1" = 40'

EXISTING
POWER SOURCE
120/240 v.c.c., 60hz.,
1 Phase, 3 Wire Service
By CEDAR KNEX



FOR BIDDING PURPOSES ONLY

PLOT SCALE - 40.000000000000000

PLOTTED FROM - TRP012315

PLOT NAME - 7

FILE - U:\RDP\PRJ\YANKON\KNOX\034C.DGN





WIRING DIAGRAM

PEDESTRIAN BRIDGE

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0081(63)0	51	54

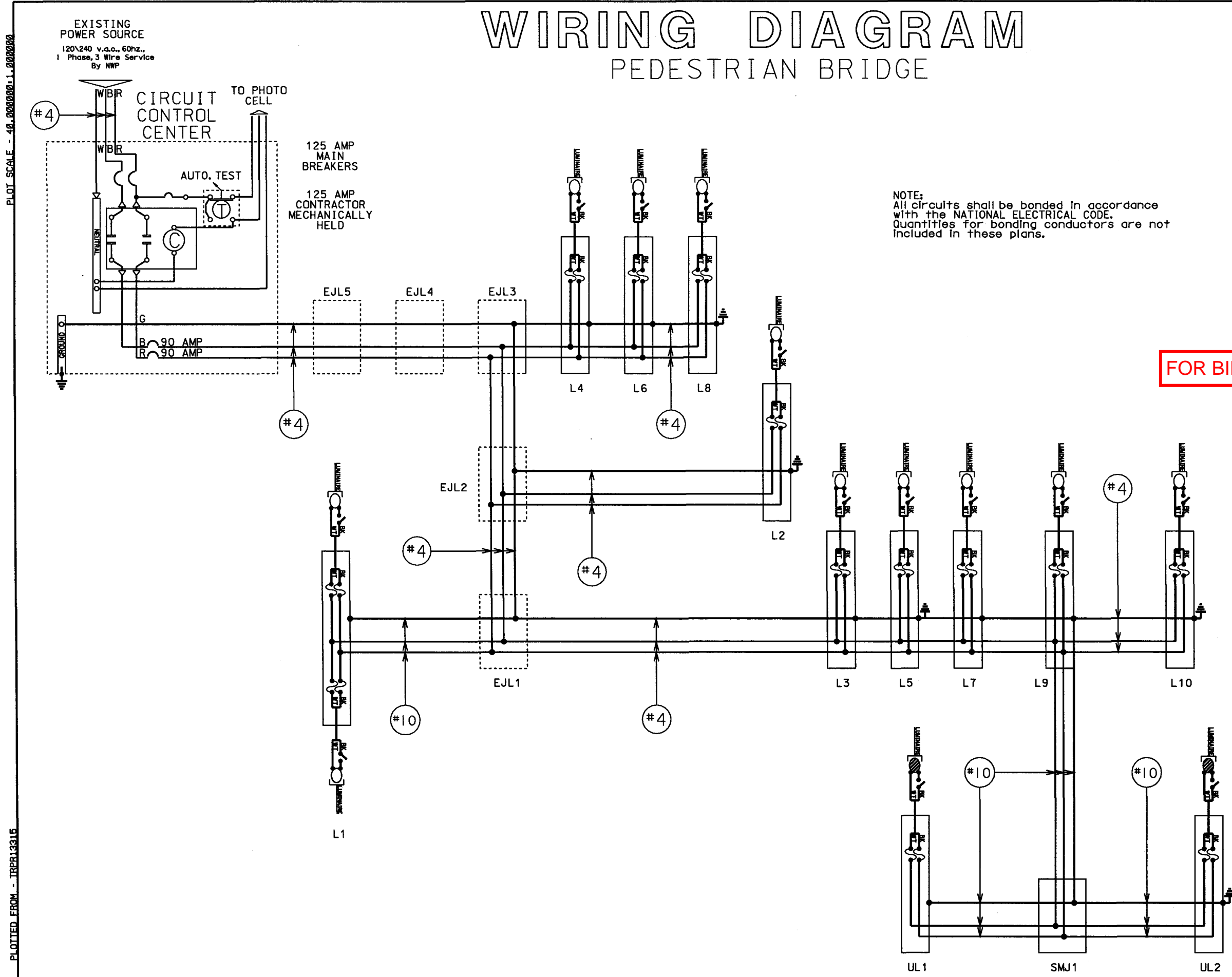
Plotting Date: 08-OCT-2009

LEGEND:

-  FUSE: 8 amp. Non-Time Delay
or
3 1/2 amp. Dual Element
-  LUMINAIRE: 400 watt High Pressure
Sodium Lamp
-  FUSE: 8 amp. Non-Time Delay
or
3 1/2 amp. Dual Element
-  LUMINAIRE: 175 watt High Pressure
Sodium Lamp

NOTE:
All circuits shall be bonded in accordance
with the NATIONAL ELECTRICAL CODE.
Quantities for bonding conductors are not
included in these plans.

FOR BIDDING PURPOSES ONLY



PLOT SCALE - 40,0000001.000000

PLOTTED FROM - TRP16315





PLOT NAME - 8

FILE - U:\RD\PRJ\YANK\0081\007015W.DGN

PLOT SCALE - 40,000/1,000,000

PLOTTED FROM - TRP16315

LEGEND:

-  FUSE: 8 amp. Non-Time Delay
or
3 1/2 amp. Dual Element
-  LUMINAIRE: 400 watt High Pressure
Sodium Lamp
-  FUSE: 8 amp. Non-Time Delay
or
3 1/2 amp. Dual Element
-  LUMINAIRE: 175 watt High Pressure
Sodium Lamp

WIRING DIAGRAM

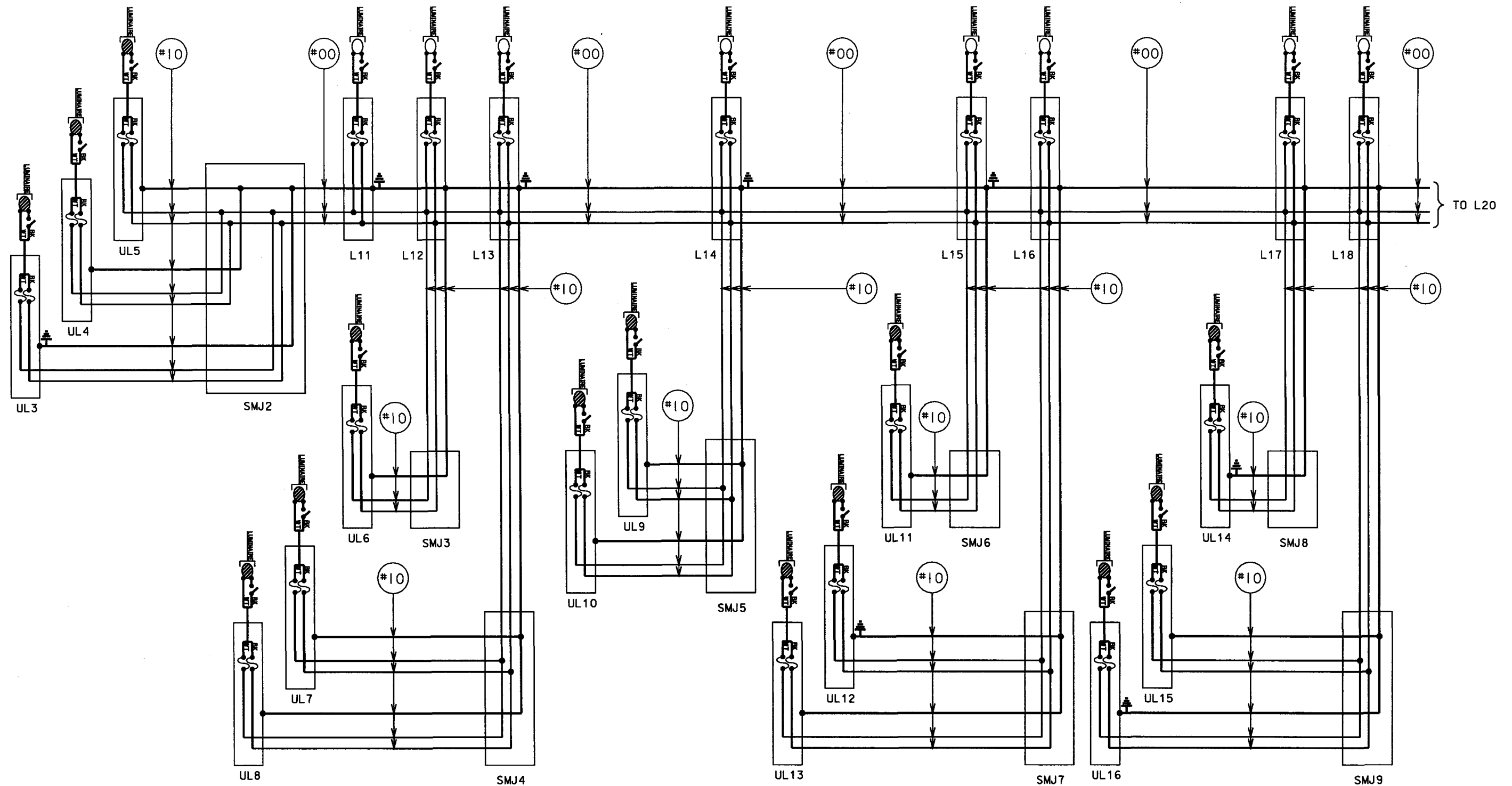
PEDESTRIAN BRIDGE

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0081(63)0	52	54

Plotting Date: 08-OCT-2009

NOTE:
All circuits shall be bonded in accordance
with the NATIONAL ELECTRICAL CODE.
Quantities for bonding conductors are not
included in these plans.



PLOT NAME - 9

FILE - U:\RD\PRJ\YANK00KN\0150284.DGN

WIRING DIAGRAM

PEDESTRIAN BRIDGE

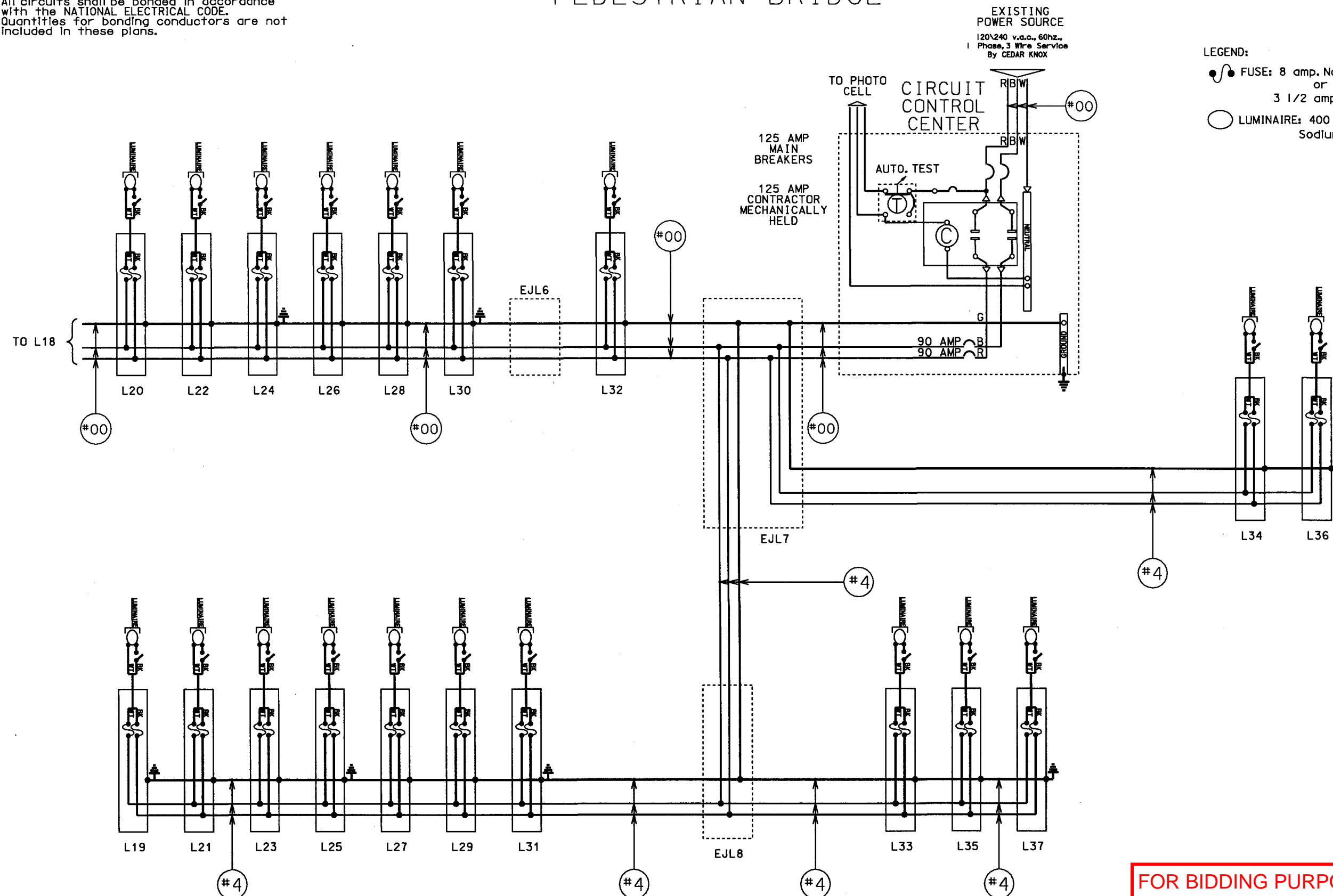
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0081(63)0	53	54

Plotting Date: 08-OCT-2009

NOTE:
All circuits shall be bonded in accordance
with the NATIONAL ELECTRICAL CODE.
Quantities for bonding conductors are not
included in these plans.

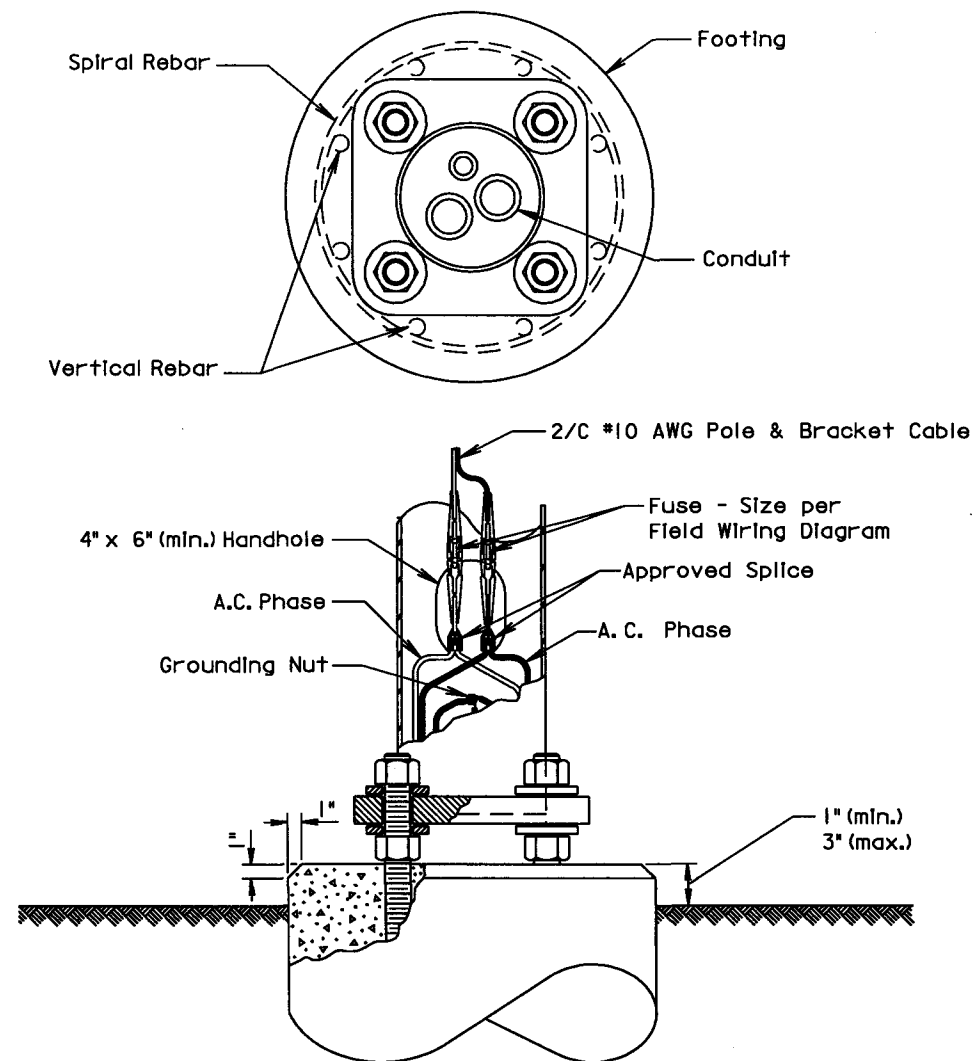
LEGEND:

- FUSE: 8 amp. Non-Time Delay
or
3 1/2 amp. Dual Element
- LUMINAIRE: 400 watt High Pressure
Sodium Lamp



FOR BIDDING PURPOSES ONLY

Plotting Date: 08-OCT-2009



GENERAL NOTES:

Base details are provided for example only and are not intended to be a complete design.

Connectors shall be breakaway type with the male plugs pointing down.

March 31, 2000

Published Date: 3rd Qtr. 2009	S D D O T	ROADWAY LUMINAIRE POLE FIXED BASE (NO NEUTRAL)	PLATE NUMBER 635.16
			Sheet 1 of 1

FOR BIDDING PURPOSES ONLY